

SEQUENCE LISTING

<110> Gramatikova, Svetlana
Hazlewood, Geoff

<120> PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM
AND METHODS FOR MAKING AND USING THEM

<130> 564462004201

<140> 10/511,875

<140> 2003-04-21

<150> PCT/US03/12556

<151> 2003-04-21

<150> 60/374,313

<151> 2002-04-19

<160> 106

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 849

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 1

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gaggataagc	ataatgaggg	gattaactct	catttggtgga	ttgtaaatcg	tgcaattgac	180
atcatgtctc	gtaatacaac	gattgtgaat	ccgaatgaaa	ctgcattatt	aaatgagtgg	240
cgtgctgatt	tagaaaatgg	tatttattct	gctgattacg	agaatcctta	ttatgataat	300
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aaacatgcaa	aagaaacagg	cgcaaaatat	tttaaccttg	ctgggtcaagc	ataccaaaat	420
caagatatgc	agcaagcatt	cttctactta	ggattatcgc	ttcattatatt	aggagatgtg	480
aatcagccaa	tgcatgcagc	aaactttacg	aatctttctt	atccaatggg	tttccattct	540
aaatacgaaa	atthttgttg	tacaataaaa	aataactata	ttgtttcaga	tagcaatgga	600
tatttgaatt	ggaaaggagc	aaaccagaa	gattggattg	aaggagcagc	ggtagcagct	660
aaacaagatt	atcctggcgt	tgtgaacgat	acgacaaaag	attggtttgt	aaaagcagcc	720
gtatctcaag	aatatgcaga	taaatggcgt	gcggaagtaa	caccgggtgac	aggaaaagcgt	780
ttaatggaag	cgcagcgcgt	tacagctggt	tatattcatt	tgtggtttga	tacgtatgta	840
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<210> 2

<211> 282

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(24)

<400> 2

Met	Lys	Lys	Lys	Val	Leu	Ala	Leu	Ala	Ala	Met	Val	Ala	Leu	Ala	Ala
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<220>
 <223> Obtained from an environmental sample.
 <221> SIGNAL
 <222> (1)...(24)

<400> 4
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 20 25 30
 Pro Ile Ala Leu Lys Trp Ser Ala Glu Ser Ile His Asn Glu Gly Val
 35 40 45
 Ser Ser His Leu Trp Ile Val Asn Arg Ala Ile Asp Ile Met Ser Gln
 50 55 60
 Asn Thr Thr Val Val Lys Gln Asn Glu Thr Ala Leu Leu Asn Glu Trp
 65 70 75 80
 Arg Thr Asp Leu Glu Lys Gly Ile Tyr Ser Ala Asp Tyr Glu Asn Pro
 85 90 95
 Tyr Tyr Asp Asn Ser Thr Phe Ala Ser His Phe Tyr Asp Pro Asp Ser
 100 105 110
 Gly Lys Thr Tyr Ile Pro Phe Ala Lys Gln Ala Lys Gln Thr Gly Ala
 115 120 125
 Lys Tyr Phe Lys Leu Ala Gly Glu Ala Tyr Gln Asn Lys Asp Leu Lys
 130 135 140
 Asn Ala Phe Phe Tyr Leu Gly Leu Ser Leu His Tyr Leu Gly Asp Val
 145 150 155 160
 Asn Gln Pro Met His Ala Ala Asn Phe Thr Asn Ile Ser His Pro Phe
 165 170 175
 Gly Phe His Ser Lys Tyr Glu Asn Phe Val Asp Thr Val Lys Asp Asn
 180 185 190
 Tyr Arg Val Thr Asp Gly Asn Gly Tyr Trp Asn Trp Gln Ser Ala Asn
 195 200 205
 Pro Glu Glu Trp Val His Ala Ser Ala Ser Ala Ala Lys Ala Asp Phe
 210 215 220
 Pro Ser Ile Val Asn Asp Lys Thr Lys Asn Trp Phe Leu Lys Ala Ala
 225 230 235 240
 Val Ser Gln Asp Ser Ala Asp Lys Trp Arg Ala Glu Val Thr Pro Ile
 245 250 255
 Thr Gly Lys Arg Leu Met Glu Ala Gln Arg Val Thr Ala Gly Tyr Ile
 260 265 270
 His Leu Trp Phe Asp Thr Tyr Val Asn Asn Lys
 275 280

<210> 5
 <211> 843
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 5
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 cataatgaag gagtaagttc tcatTTtatgg attgtaaaca gagcaattga tattatgtcc 180
 caaaatacga ctgtggtgaa gcaaaatgag acagctctat taaatgaatg gcgtacgaat 240
 ttggaggaag gtatttattc tgcagattat aaaaacccat actatgataa ttccacattc 300
 gcttcacact tctatgatcc tgattcagaa aaaacgtata ttccatttgc taaacaagca 360
 aagcaaacgg gagcaaagta ttttaaatta gctggtgaag cttatcaaaa taaagatctg 420
 aaaaatgcag tcttttattt aggattatca cttcattatt taggggatgt caatcaacca 480
 atgcatgcag caaactttac taacatttcg catccatttg gcttccactc aaaatatgaa 540
 aacttcggtg atacagtgaag agacaattat agagtaacag atggagatgg ctattggaat 600
 tgaaaaagtg caaatccaga agagtgggtt catgcatcag catcagcagc aaaagctgat 660


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ttcgtaccgc tgcagccatc acatgctact gaaaattatc caaatgattt taaactgttg 120
caacataatg tattttttatt gcctgaatca gtttcttatt ggggtcagga cgaacgtgca 180
gattatatga gtaatgcaga ttacttcaag ggacatgatg ctctgctctt aaatgagctt 240
tttgacaatg gaaattcgaa catgctgcta atgaacttat ccacggaata tccatatcaa 300
acgccagtgc ttggccgttc gatgagtgga tgggatgaaa ctagaggaag ctatttcta 360
tttgtaccgc aagatggcgg tgtagcaatt atcagtaaat ggccaatcgt ggagaaaata 420
cagcatgttt acgcgaatgg ttgcggtgca gactattatg caaataaagg atttgtttat 480
gcaaaagtac aaaaaggggg taaattctat catcttatca gcactcatgc tcaagccgaa 540
gatactgggt gtgatcaggg tgaaggagca gaaattcgtc attcacagtt tcaagaaatc 600
aacgacttta ttaaaaataa aaacattccg aaagatgaag tggtatattat tgggtggtgac 660
tttaatgtga tgaagagtga cacaacagag tacaatagca tgttatcaac attaaatgtc 720
aatgcgcccta ccgaatatatt agggcatagc tctacttggg acccagaaac gaacagcatt 780
acaggttaca attaccctga ttatgcgcca cagcatttag attatatattt tgtggaaaaa 840
gatcataaac aaccaagttc atgggtaaat gaaacgatta ctccgaagtc tccaacttgg 900
aaggcaatct atgagtataa tgattattcc gatcactatc ctgttaaagc atacgtaaaa 960
taa

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<210> 8
 <211> 320
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(29)

<400> 8

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Leu	Leu	Gly	Val	Phe	Val	Pro	Leu	Gln	Pro	Ser	His	Ala	Thr	Glu	Asn
			20					25					30		
Tyr	Pro	Asn	Asp	Phe	Lys	Leu	Leu	Gln	His	Asn	Val	Phe	Leu	Leu	Pro
		35					40					45			
Glu	Ser	Val	Ser	Tyr	Trp	Gly	Gln	Asp	Glu	Arg	Ala	Asp	Tyr	Met	Ser
	50					55					60				
Asn	Ala	Asp	Tyr	Phe	Lys	Gly	His	Asp	Ala	Leu	Leu	Leu	Asn	Glu	Leu
65					70					75				80	
Phe	Asp	Asn	Gly	Asn	Ser	Asn	Met	Leu	Leu	Met	Asn	Leu	Ser	Thr	Glu
				85					90					95	
Tyr	Pro	Tyr	Gln	Thr	Pro	Val	Leu	Gly	Arg	Ser	Met	Ser	Gly	Trp	Asp
			100					105					110		
Glu	Thr	Arg	Gly	Ser	Tyr	Ser	Asn	Phe	Val	Pro	Glu	Asp	Gly	Gly	Val
		115					120					125			
Ala	Ile	Ile	Ser	Lys	Trp	Pro	Ile	Val	Glu	Lys	Ile	Gln	His	Val	Tyr
	130					135					140				
Ala	Asn	Gly	Cys	Gly	Ala	Asp	Tyr	Tyr	Ala	Asn	Lys	Gly	Phe	Val	Tyr
145					150					155				160	
Ala	Lys	Val	Gln	Lys	Gly	Asp	Lys	Phe	Tyr	His	Leu	Ile	Ser	Thr	His
			165					170						175	
Ala	Gln	Ala	Glu	Asp	Thr	Gly	Cys	Asp	Gln	Gly	Glu	Gly	Ala	Glu	Ile
		180						185					190		
Arg	His	Ser	Gln	Phe	Gln	Glu	Ile	Asn	Asp	Phe	Ile	Lys	Asn	Lys	Asn
		195					200					205			
Ile	Pro	Lys	Asp	Glu	Val	Val	Phe	Ile	Gly	Gly	Asp	Phe	Asn	Val	Met
	210					215					220				
Lys	Ser	Asp	Thr	Thr	Glu	Tyr	Asn	Ser	Met	Leu	Ser	Thr	Leu	Asn	Val
225					230					235				240	
Asn	Ala	Pro	Thr	Glu	Tyr	Leu	Gly	His	Ser	Ser	Thr	Trp	Asp	Pro	Glu
			245						250					255	
Thr	Asn	Ser	Ile	Thr	Gly	Tyr	Asn	Tyr	Pro	Asp	Tyr	Ala	Pro	Gln	His
		260						265					270		
Leu	Asp	Tyr	Ile	Phe	Val	Glu	Lys	Asp	His	Lys	Gln	Pro	Ser	Ser	Trp

	275						280						285						
Val	Asn	Glu	Thr	Ile	Thr	Pro	Lys	Ser	Pro	Thr	Trp	Lys	Ala	Ile	Tyr				
	290						295				300								
Glu	Tyr	Asn	Asp	Tyr	Ser	Asp	His	Tyr	Pro	Val	Lys	Ala	Tyr	Val	Lys				
305					310					315					320				

<210> 9
 <211> 999
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 9

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gcaaatcgtg	cacagcgctt	gccaaacgtc	atatctcaat	taagtgcag	tcctgatgtc	180
attcttatca	gcgaagcggt	tagcagccaa	tcagaatctg	cgtagcgca	acttgctcaa	240
ctttaccctt	atcaaactcc	caatggtggc	gaagactgta	gtggcgctgg	ctggcaaagc	300
ttaacgggta	actgctcgaa	tagccccttt	gtgatccgcg	gtggagtggg	gattttatct	360
aagtacccca	tcattacgca	aaaagcccat	gtgtttaata	acagcctgac	tgatagttgg	420
gattatttag	caaacaaagg	tttcgcttat	gttgaaatag	aaaaacatgg	caaacgttac	480
caccttattg	gcacgcattt	acaagcaacg	catgatggcg	acacagaagc	tgagcatatt	540
gtgagaatgg	gtcaattaca	agagatacaa	gatttcattc	aaagcgagca	aattcacact	600
tctgagccgg	tcattatcgg	cggtgatatg	aacgtagagt	ggagcaagca	atctgaaatt	660
acagatatgc	tcgaagtggg	tcgcagccgt	ctaattttca	acacacctga	agttggctct	720
ttctctgcaa	aacacaactg	gtttaccaaa	gctaacgcct	actatttcga	ctacagctta	780
gagtataacg	acacgctcga	ttatgtactt	tggcatgcag	accataagca	acccaccaat	840
acccagaaaa	tgtagtacg	ttacccaaaa	gcagagcgtg	acttttactg	gcgttactta	900
cgcggaaatt	ggaacttacc	ttctggccgt	tattatcatg	atggatacta	taacgaactg	960
tctgatcact	accagtgca	agttaacttt	gaattttaa			999

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 <211> 332
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(20)

<400> 10

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		20						25					30						
Leu	Asn	Val	Gln	Asp	Trp	Asp	Gln	Ala	Asn	Arg	Ala	Gln	Arg	Leu	Pro				
	35						40					45							
Asn	Val	Ile	Ser	Gln	Leu	Ser	Asp	Ser	Pro	Asp	Val	Ile	Leu	Ile	Ser				
	50					55					60								
Glu	Ala	Phe	Ser	Ser	Gln	Ser	Glu	Ser	Ala	Leu	Ala	Gln	Leu	Ala	Gln				
65					70				75						80				
Leu	Tyr	Pro	Tyr	Gln	Thr	Pro	Asn	Val	Gly	Glu	Asp	Cys	Ser	Gly	Ala				
				85					90					95					
Gly	Trp	Gln	Ser	Leu	Thr	Gly	Asn	Cys	Ser	Asn	Ser	Pro	Phe	Val	Ile				
		100					105						110						
Arg	Gly	Gly	Val	Val	Ile	Leu	Ser	Lys	Tyr	Pro	Ile	Ile	Thr	Gln	Lys				
		115					120					125							
Ala	His	Val	Phe	Asn	Asn	Ser	Leu	Thr	Asp	Ser	Trp	Asp	Tyr	Leu	Ala				
	130				135						140								
Asn	Lys	Gly	Phe	Ala	Tyr	Val	Glu	Ile	Glu	Lys	His	Gly	Lys	Arg	Tyr				

145		150		155		160									
His	Leu	Ile	Gly	Thr	His	Leu	Gln	Ala	Thr	His	Asp	Gly	Asp	Thr	Glu
			165						170					175	
Ala	Glu	His	Ile	Val	Arg	Met	Gly	Gln	Leu	Gln	Glu	Ile	Gln	Asp	Phe
			180					185					190		
Ile	Gln	Ser	Glu	Gln	Ile	His	Thr	Ser	Glu	Pro	Val	Ile	Ile	Gly	Gly
	195						200					205			
Asp	Met	Asn	Val	Glu	Trp	Ser	Lys	Gln	Ser	Glu	Ile	Thr	Asp	Met	Leu
	210					215					220				
Glu	Val	Val	Arg	Ser	Arg	Leu	Ile	Phe	Asn	Thr	Pro	Glu	Val	Gly	Ser
225					230					235					240
Phe	Ser	Ala	Lys	His	Asn	Trp	Phe	Thr	Lys	Ala	Asn	Ala	Tyr	Tyr	Phe
			245					250					255		
Asp	Tyr	Ser	Leu	Glu	Tyr	Asn	Asp	Thr	Leu	Asp	Tyr	Val	Leu	Trp	His
	260						265					270			
Ala	Asp	His	Lys	Gln	Pro	Thr	Asn	Thr	Pro	Glu	Met	Leu	Val	Arg	Tyr
	275						280					285			
Pro	Lys	Ala	Glu	Arg	Asp	Phe	Tyr	Trp	Arg	Tyr	Leu	Arg	Gly	Asn	Trp
	290					295					300				
Asn	Leu	Pro	Ser	Gly	Arg	Tyr	Tyr	His	Asp	Gly	Tyr	Tyr	Asn	Glu	Leu
305					310				315					320	
Ser	Asp	His	Tyr	Pro	Val	Gln	Val	Asn	Phe	Glu	Phe				
			325					330							

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 <211> 1041
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

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 ggaacaagtg caggggctat taacgctctc attttttcgc tgggctttac cattaagag 180
 cagcaggata ttctcaattc caccaacttc agggagttaa tggacagctc tttcggattt 240
 gtgcgaaact tcagaaggct ctggagttaa ttcgggtgga accgcggtga tgtgttttcg 300
 gagtgggcag gagagctggt gaaagagaaa ctcggcaaga agaacgccac cttcggcgat 360
 ctgaaaaaag cgaagcgccc cgatctctac gttatcggaa ccaacctctc caccgggttt 420
 tccgagactt tttcgcatga acgccacgcc aacatgccgc tgggtggatgc ggtgcggatc 480
 agcatgtcga tcccgtctct ttttgcgcca cgcagacttg gcaaacgaag cgatgtgtat 540
 gtggatggag gtgttatgct caactaccgc gtaaagctgt tcgacaggga gaaatacatc 600
 gatttggaag aggagaaaga ggcagcccgc tacgtggagt actacaatca agagaatgcc 660
 cggtttctgc ttgagcggcc cggccgaagc ccgtacgttt acaaccggca gaccctaggc 720
 ctgcggtctg actcgcagga agagatcggc ctgttcggtt acgatgagcc gctgaagggc 780
 aaacagatca accgcttccc cgaatatgcc aaagccctga tcggtgcact gatgcagggtg 840
 caggagaaca tccacctgaa aagcgacgac tggcagcgaa cgctctacat caacacgctg 900
 gatgtgggta ccacagattt cgacattaat gacgagaaga aaaaagtgct ggtgaatgag 960
 ggaatcaagg gagcggaaac ctacttccgc tggtttgagg atcccgaagc taaaccggtg 1020
 aacaaggtg atttggtctg a 1041

<210> 12
 <211> 346
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

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caggaaaaca ttcattctaca tggcgatgat tgggcgcgca cggctctatat cgatacattg	900
gatgtgggta cgacggattt caatctttct gatgcaacca agcaagcact gattgagcaa	960
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aatagagtgg agtcatag	1038

<210> 14
 <211> 345
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 14

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			20					25					30		
Leu	Gln	Asp	Ile	His	Arg	Val	Gly	Gly	Cys	Ser	Ala	Gly	Ala	Ile	Asn
		35					40					45			
Ala	Leu	Ile	Phe	Ala	Leu	Gly	Tyr	Thr	Val	Arg	Glu	Gln	Lys	Glu	Ile
	50					55					60				
Leu	Gln	Ala	Thr	Asp	Phe	Asn	Gln	Phe	Met	Asp	Asn	Ser	Trp	Gly	Val
65					70					75					80
Ile	Arg	Asp	Ile	Arg	Arg	Leu	Ala	Arg	Asp	Phe	Gly	Trp	His	Lys	Gly
				85					90					95	
Asp	Phe	Phe	Asn	Ser	Trp	Ile	Gly	Asp	Leu	Ile	His	Arg	Arg	Leu	Gly
			100					105					110		
Asn	Arg	Arg	Ala	Thr	Phe	Lys	Asp	Leu	Gln	Lys	Ala	Lys	Leu	Pro	Asp
			115					120				125			
Leu	Tyr	Val	Ile	Gly	Thr	Asn	Leu	Ser	Thr	Gly	Tyr	Ala	Glu	Val	Phe
	130					135					140				
Ser	Ala	Glu	Arg	His	Pro	Asp	Met	Glu	Leu	Ala	Thr	Ala	Val	Arg	Ile
145					150					155					160
Ser	Met	Ser	Ile	Pro	Leu	Phe	Phe	Ala	Ala	Val	Arg	His	Gly	Glu	Arg
				165				170						175	
Gln	Asp	Val	Tyr	Val	Asp	Gly	Gly	Val	Gln	Leu	Asn	Tyr	Pro	Ile	Lys
			180					185					190		
Leu	Phe	Asp	Arg	Glu	Arg	Tyr	Ile	Asp	Leu	Val	Lys	Asp	Pro	Gly	Ala
		195					200					205			
Val	Arg	Arg	Thr	Gly	Tyr	Tyr	Asn	Lys	Glu	Asn	Ala	Arg	Phe	Gln	Leu
	210					215					220				
Glu	Arg	Pro	Gly	His	Ser	Pro	Tyr	Val	Tyr	Asn	Arg	Gln	Thr	Leu	Gly
225					230					235					240
Leu	Arg	Leu	Asp	Ser	Arg	Glu	Glu	Ile	Gly	Leu	Phe	Arg	Tyr	Asp	Glu
				245					250					255	
Pro	Leu	Lys	Gly	Lys	Pro	Ile	Lys	Ser	Phe	Thr	Asp	Tyr	Ala	Arg	Gln
			260					265					270		
Leu	Phe	Gly	Ala	Leu	Met	Asn	Ala	Gln	Glu	Asn	Ile	His	Leu	His	Gly
		275					280					285			
Asp	Asp	Trp	Ala	Arg	Thr	Val	Tyr	Ile	Asp	Thr	Leu	Asp	Val	Gly	Thr
	290						295				300				
Thr	Asp	Phe	Asn	Leu	Ser	Asp	Ala	Thr	Lys	Gln	Ala	Leu	Ile	Glu	Gln
305					310					315					320
Gly	Ile	Asn	Gly	Thr	Glu	Asn	Tyr	Phe	Asp	Trp	Phe	Asp	Asn	Pro	Leu
			325						330					335	
Glu	Lys	Pro	Val	Asn	Arg	Val	Glu	Ser							
			340					345							

<210> 15
 <211> 1344
 <212> DNA
 <213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 15

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gattatgtgt	ccctggatga	ccaggtgacg	ttcaatgatc	tggtcgatgc	catggccaga	180
gcctggagcg	atcgtggtct	gcccacggcc	ccgcgcagcg	tcgatgccgt	cgtgcacagc	240
accggcggcc	tggtgatccg	cgactggctc	acgcagctgt	acacgccgga	aacagccccc	300
attcgtcgcc	tgctgatgct	cgctccggcc	aatttcggct	cgccgctggc	acacaccgga	360
cgcagcatga	tcggccgggt	caccaagggc	tggaagggca	cgcggtctct	tgaaacgggc	420
aagcacattc	tcaaagggtc	cgaactggcc	agcccctacg	cctgggcgct	ggccgaacgc	480
gatctgttca	gcgatcagaa	ctattatggc	gccgggcgca	tcctgtgcac	tgctctgggtg	540
ggcaacgccg	gttatcgcg	catcagcgcc	gtcgccaacc	ggcccggcac	ggacggcacc	600
gtgcgcgtca	gcagcgccaa	tctccaagcg	gccaggatgc	tgctcgattt	cagcgccagt	660
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gccgacgagg	aagaccacag	caccatcgcc	gccaaggatc	gcggcccgcg	caaggcagtc	780
acctgggaac	tgattctcaa	agccctgcag	atcgaggatg	caagctttgc	tcaatgggtgc	840
cggcagatgc	aggagcattc	cgcggccgtg	acggaaacgg	cgaaaaagcg	ccgcaatggt	900
cactacaaca	gcttccagaa	taccgtcggt	cgcgtgggtg	acaaccacgg	tgccgcctgt	960
caggattatc	tcatcgagtt	ttacatgaat	gatgatcgca	aactccgcga	tcagcgccctc	1020
accagcgcc	tgccaggagca	ggtgattacc	aacgtgcacg	gctacggtga	cgacaagtcc	1080
tatcgagca	tgctgatcaa	ctgcacggag	ctctatgcgc	tgatgtccag	accgcaggat	1140
cgctgaaca	tcagcatcac	cgcctatccg	gatctctcca	agggactggt	ggggtatcgc	1200
acctacacgg	acgaggatat	cggttccctc	tctctggatg	cagcgcagat	ccgaaagctc	1260
tttaagccgc	accgtaccct	gttgatgaca	ctgtgcctgc	aacgctatca	gaaagatgat	1320
gtgttccgat	tcagggatgt	ttga				1344

<210> 16

<211> 447

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 16

Met	Leu	Val	Ile	Ile	His	Gly	Trp	Ser	Asp	Glu	Ala	Gly	Ser	Phe	Lys
1				5					10					15	
Thr	Leu	Ala	Arg	Arg	Leu	Ala	Lys	Ala	Pro	Pro	Glu	Gly	Leu	Gly	Thr
			20					25					30		
Gln	Val	Thr	Glu	Ile	His	Leu	Gly	Asp	Tyr	Val	Ser	Leu	Asp	Asp	Gln
		35					40					45			
Val	Thr	Phe	Asn	Asp	Leu	Val	Asp	Ala	Met	Ala	Arg	Ala	Trp	Ser	Asp
	50					55					60				
Arg	Gly	Leu	Pro	Thr	Ala	Pro	Arg	Ser	Val	Asp	Ala	Val	Val	His	Ser
65					70					75				80	
Thr	Gly	Gly	Leu	Val	Ile	Arg	Asp	Trp	Leu	Thr	Gln	Leu	Tyr	Thr	Pro
				85					90					95	
Glu	Thr	Ala	Pro	Ile	Arg	Arg	Leu	Leu	Met	Leu	Ala	Pro	Ala	Asn	Phe
			100					105					110		
Gly	Ser	Pro	Leu	Ala	His	Thr	Gly	Arg	Ser	Met	Ile	Gly	Arg	Val	Thr
		115					120					125			
Lys	Gly	Trp	Lys	Gly	Thr	Arg	Leu	Phe	Glu	Thr	Gly	Lys	His	Ile	Leu
	130					135					140				
Lys	Gly	Leu	Glu	Leu	Ala	Ser	Pro	Tyr	Ala	Trp	Ala	Leu	Ala	Glu	Arg
145					150					155				160	
Asp	Leu	Phe	Ser	Asp	Gln	Asn	Tyr	Tyr	Gly	Ala	Gly	Arg	Ile	Leu	Cys
			165						170					175	
Thr	Val	Leu	Val	Gly	Asn	Ala	Gly	Tyr	Arg	Gly	Ile	Ser	Ala	Val	Ala
		180						185					190		
Asn	Arg	Pro	Gly	Thr	Asp	Gly	Thr	Val	Arg	Val	Ser	Ser	Ala	Asn	Leu
		195					200						205		

Gln	Ala	Ala	Arg	Met	Leu	Leu	Asp	Phe	Ser	Ala	Ser	Pro	Gln	Ala	Glu
210						215					220				
Pro	Glu	Phe	Thr	Leu	His	Asp	Ser	Thr	Ala	Glu	Ile	Ala	Phe	Gly	Ile
225					230					235					240
Ala	Asp	Glu	Glu	Asp	His	Ser	Thr	Ile	Ala	Ala	Lys	Asp	Arg	Gly	Pro
				245					250					255	
Arg	Lys	Ala	Val	Thr	Trp	Glu	Leu	Ile	Leu	Lys	Ala	Leu	Gln	Ile	Glu
			260					265					270		
Asp	Ala	Ser	Phe	Ala	Gln	Trp	Cys	Arg	Gln	Met	Gln	Glu	His	Ser	Ala
		275					280					285			
Ala	Val	Thr	Glu	Thr	Ala	Glu	Lys	Arg	Arg	Asn	Val	His	Tyr	Asn	Ser
	290					295					300				
Phe	Gln	Asn	Thr	Val	Val	Arg	Val	Val	Asp	Asn	His	Gly	Ala	Ala	Val
305					310					315					320
Gln	Asp	Tyr	Leu	Ile	Glu	Phe	Tyr	Met	Asn	Asp	Asp	Arg	Lys	Leu	Arg
			325						330					335	
Asp	Gln	Arg	Leu	Thr	Gln	Arg	Leu	Gln	Glu	Gln	Val	Ile	Thr	Asn	Val
			340					345					350		
His	Gly	Tyr	Gly	Asp	Asp	Lys	Ser	Tyr	Arg	Ser	Met	Leu	Ile	Asn	Cys
	355						360					365			
Thr	Glu	Leu	Tyr	Ala	Leu	Met	Ser	Arg	Pro	Gln	Asp	Arg	Leu	Asn	Ile
	370					375					380				
Ser	Ile	Thr	Ala	Tyr	Pro	Asp	Leu	Ser	Lys	Gly	Leu	Val	Gly	Tyr	Arg
385					390					395					400
Thr	Tyr	Thr	Asp	Glu	Asp	Ile	Gly	Ser	Leu	Ser	Leu	Asp	Ala	Ala	Gln
			405					410						415	
Ile	Arg	Lys	Leu	Phe	Lys	Pro	His	Arg	Thr	Leu	Leu	Met	Thr	Leu	Cys
			420					425					430		
Leu	Gln	Arg	Tyr	Gln	Lys	Asp	Asp	Val	Phe	Arg	Phe	Arg	Asp	Val	
	435						440					445			

<210> 17
 <211> 1137
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 17

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atcctgcagg	aaaaacatgg	gaaggactat	ctcctttgcg	atcactttga	tttgatcggt	180
ggaacttcca	caggctccat	cattgcagca	gcattggcta	taggcatgac	agtggaggaa	240
atcactaaaa	tgtatatgga	tctgggcgga	aaaattttcg	gcaagaaaag	gagtttctgg	300
agaccctggg	aaactgcgaa	atacttgaaa	gcaggatatg	accacaaagc	tcttgaaaag	360
agtctgaaag	atgctttcca	ggattttctt	ttaggaagtg	accaaaattag	aacaggtctt	420
tgtatagtag	ccaaaagagc	agataccaat	agtatatggc	cattgattaa	ccaccccaaa	480
ggaaaattct	atgattcaga	acaaggcaaa	aacaaaaata	tccccttatg	gcaggcagta	540
agggcgagta	ccgctgctcc	aacctatttc	gctccacaat	taatagatgt	gggtgatggt	600
caaaaggctg	cttttgtgga	cggaggggta	agcatggcca	ataaccccg	attaaccctg	660
ttaaaagtgg	ctacacttaa	aggttttcct	tttcattggc	caatgggaga	agacaaactg	720
accatagttt	cagtaggcac	cggatatagt	gttttccaaa	gacaaaagg	tgaaatcacc	780
aaagcttcct	tattaacttg	ggccaaaaac	gtcccggaaa	tgttgatgca	ggatgcttct	840
tggcagaatc	agaccatact	tcagtggatt	tctaaatccc	ccactgcaca	ttccatagat	900
atggaaatgg	aagaccttag	agatgacttt	ctaggcggaa	gaccactcat	caaatacctc	960
aggtacaact	tccccttgac	agtaaatgat	ctcaatggat	tgaagcttgg	gaaaagcttt	1020
acccaaaaag	aggtcgaaga	tttggtggaa	atgagcaatg	cacataaccg	agaggagtgt	1080
tataggattg	gggagaaggc	ggctgaaggg	tcggtaaaaa	agaacattt	tgaataa	1137

<210> 18
 <211> 378
 <212> PRT
 <213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 18

Met Lys Lys Ser Leu Gln Gln His Leu Ala Ala Asp Gly Ser Pro Lys
1 5 10 15
Asn Ile Leu Ser Leu Asp Gly Gly Gly Ile Arg Gly Ala Leu Thr Leu
20 25 30
Gly Phe Leu Lys Lys Ile Glu Ser Ile Leu Gln Glu Lys His Gly Lys
35 40 45
Asp Tyr Leu Leu Cys Asp His Phe Asp Leu Ile Gly Gly Thr Ser Thr
50 55 60
Gly Ser Ile Ile Ala Ala Ala Leu Ala Ile Gly Met Thr Val Glu Glu
65 70 75 80
Ile Thr Lys Met Tyr Met Asp Leu Gly Gly Lys Ile Phe Gly Lys Lys
85 90 95
Arg Ser Phe Trp Arg Pro Trp Glu Thr Ala Lys Tyr Leu Lys Ala Gly
100 105 110
Tyr Asp His Lys Ala Leu Glu Lys Ser Leu Lys Asp Ala Phe Gln Asp
115 120 125
Phe Leu Leu Gly Ser Asp Gln Ile Arg Thr Gly Leu Cys Ile Val Ala
130 135 140
Lys Arg Ala Asp Thr Asn Ser Ile Trp Pro Leu Ile Asn His Pro Lys
145 150 155 160
Gly Lys Phe Tyr Asp Ser Glu Gln Gly Lys Asn Lys Asn Ile Pro Leu
165 170 175
Trp Gln Ala Val Arg Ala Ser Thr Ala Ala Pro Thr Tyr Phe Ala Pro
180 185 190
Gln Leu Ile Asp Val Gly Asp Gly Gln Lys Ala Ala Phe Val Asp Gly
195 200 205
Gly Val Ser Met Ala Asn Asn Pro Ala Leu Thr Leu Leu Lys Val Ala
210 215 220
Thr Leu Lys Gly Phe Pro Phe His Trp Pro Met Gly Glu Asp Lys Leu
225 230 235 240
Thr Ile Val Ser Val Gly Thr Gly Tyr Ser Val Phe Gln Arg Gln Lys
245 250 255
Gly Glu Ile Thr Lys Ala Ser Leu Leu Thr Trp Ala Lys Asn Val Pro
260 265 270
Glu Met Leu Met Gln Asp Ala Ser Trp Gln Asn Gln Thr Ile Leu Gln
275 280 285
Trp Ile Ser Lys Ser Pro Thr Ala His Ser Ile Asp Met Glu Met Glu
290 295 300
Asp Leu Arg Asp Asp Phe Leu Gly Gly Arg Pro Leu Ile Lys Tyr Leu
305 310 315 320
Arg Tyr Asn Phe Pro Leu Thr Val Asn Asp Leu Asn Gly Leu Lys Leu
325 330 335
Gly Lys Ser Phe Thr Gln Lys Glu Val Glu Asp Leu Val Glu Met Ser
340 345 350
Asn Ala His Asn Arg Glu Glu Leu Tyr Arg Ile Gly Glu Lys Ala Ala
355 360 365
Glu Gly Ser Val Lys Lys Glu His Phe Glu
370 375

<210> 19

<211> 1248

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 19

atgaaaaaga caacgttagt tttggctcta ttgatgccat ttggtgccgc ctccgcacaa

60

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gacaatagta tgactccaga agcaatcaca tcagctcaag tcgcacaaac acaatcagcc 120
tccacctata cctacggttag gtgttggtat cgaacagacg caagccatga ttcaccagca 180
accgactggg agtgggctag aaaggaaaac ggagactatt acaccattga cggttactgg 240
tggtcatcga tctcctttta aaatatgttc tatagcgaga ctctcaaca agagatcaag 300
cagcgttggt tagacacctt ggatgttcag cagcagaaag ccgacatcac ctactttgcc 360
gctgacaacc gcttctctta caaccattct atctggacta acgatcacgg ctttcaagcg 420
aaccaaatca accgaatagt cgcttttggc gatagtcttt cagacacggg caacctattt 480
aatgggtcac aatggatttt ccctaaccct aattcttggt tcttggttca cttctctaac 540
ggcttcgttt ggactgaata cttggctaac gctaaggcg ttccactcta taactgggct 600
gtgggtggcg cagcaggaac caaccaatat gtcgctctaa ctggtgtcta tgatcaggct 660
acttcgtacc tgacttacat gaagatggcg aaaaattatc gccagagaa cacactattc 720
acattagagt ttggattgaa tgactttatg aattacggac gtgaagtagc tgatgtaaaa 780
gctgacttta gtagcgact gattcgctc accgacgtg gcgcaaaaaa cattctgttg 840
ttcaccctac cagatgcgac caaagcccct cagttaaagt actcaacggc ccaagaaatc 900
gagacagttc gtggcaagat tctggcggtt aaccagttca tcaaagaaca agcagagtac 960
tatcaaagca aaggtgacaa cgtgatccta tttgatgcgc acgctctatt ctctagcatc 1020
accagcgacc cacaaaaaca cgggttcaga aacgcaaaag atgcctgcct agatattaat 1080
cgtagtgcac ctcaagacta cctatacagc catagtctga ccaacgactg tgcaacctat 1140
ggttctgata gctatgtatt ttggggcgta acacaccaa ccacagcaac tcataaatac 1200
atcgcaacgc atatactgat gaattcaatg tcgacctcg actttttaa 1248

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<210> 20
 <211> 415
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(19)

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<400> 20
Met Lys Lys Thr Thr Leu Val Leu Ala Leu Leu Met Pro Phe Gly Ala
1 5 10 15
Ala Ser Ala Gln Asp Asn Ser Met Thr Pro Glu Ala Ile Thr Ser Ala
20 25 30
Gln Val Ala Gln Thr Gln Ser Ala Ser Thr Tyr Thr Tyr Val Arg Cys
35 40 45
Trp Tyr Arg Thr Asp Ala Ser His Asp Ser Pro Ala Thr Asp Trp Glu
50 55 60
Trp Ala Arg Lys Glu Asn Gly Asp Tyr Tyr Thr Ile Asp Gly Tyr Trp
65 70 75 80
Trp Ser Ser Ile Ser Phe Lys Asn Met Phe Tyr Ser Glu Thr Pro Gln
85 90 95
Gln Glu Ile Lys Gln Arg Cys Val Asp Thr Leu Asp Val Gln His Asp
100 105 110
Lys Ala Asp Ile Thr Tyr Phe Ala Ala Asp Asn Arg Phe Ser Tyr Asn
115 120 125
His Ser Ile Trp Thr Asn Asp His Gly Phe Gln Ala Asn Gln Ile Asn
130 135 140
Arg Ile Val Ala Phe Gly Asp Ser Leu Ser Asp Thr Gly Asn Leu Phe
145 150 155 160
Asn Gly Ser Gln Trp Ile Phe Pro Asn Pro Asn Ser Trp Phe Leu Gly
165 170 175
His Phe Ser Asn Gly Phe Val Trp Thr Glu Tyr Leu Ala Asn Ala Lys
180 185 190
Gly Val Pro Leu Tyr Asn Trp Ala Val Gly Gly Ala Ala Gly Thr Asn
195 200 205
Gln Tyr Val Ala Leu Thr Gly Val Tyr Asp Gln Val Thr Ser Tyr Leu
210 215 220
Thr Tyr Met Lys Met Ala Lys Asn Tyr Arg Pro Glu Asn Thr Leu Phe
225 230 235 240
Thr Leu Glu Phe Gly Leu Asn Asp Phe Met Asn Tyr Gly Arg Glu Val

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<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(28)

<400> 22

Met	Gln	Gln	His	Lys	Leu	Arg	Asn	Phe	Asn	Lys	Gly	Leu	Thr	Gly	Val
1				5					10					15	
Val	Leu	Ser	Val	Leu	Thr	Ser	Thr	Ser	Ala	Met	Ala	Phe	Thr	Gln	Ile
			20					25					30		
Gly	Gly	Gly	Gly	Ala	Ile	Pro	Met	Gly	His	Glu	Trp	Leu	Thr	Arg	Arg
		35					40					45			
Ser	Ala	Leu	Glu	Leu	Leu	Asn	Ala	Asp	His	Ile	Val	Ser	Asn	Asp	Pro
	50					55					60				
Leu	Asp	Pro	Arg	Leu	Gly	Trp	Ser	Gln	Gly	Leu	Ala	Lys	Asn	Leu	Asp
65				70						75					80
Leu	Ser	Asn	Ala	Leu	Asn	Glu	Val	Gln	Arg	Ile	Gln	Ser	Val	Thr	Lys
				85					90					95	
Thr	Asn	Ala	Leu	Tyr	Glu	Pro	Arg	Tyr	Asp	Asp	Val	Phe	Ser	Ala	Ile
			100					105					110		
Val	Gly	Glu	Arg	Trp	Val	Asp	Thr	Ala	Gly	Phe	Asn	Val	Ala	Lys	Ala
		115					120					125			
Thr	Val	Gly	Lys	Ile	Asp	Cys	Phe	Ser	Ala	Val	Ala	Gln	Glu	Pro	Ala
	130					135					140				
Asp	Val	Gln	Gln	Asp	His	Phe	Met	Arg	Arg	Tyr	Asp	Asp	Val	Gly	Gly
145					150					155					160
Gln	Gly	Gly	Val	Asn	Ala	Ala	Arg	Arg	Gly	Gln	Gln	Arg	Phe	Ile	Thr
				165					170					175	
His	Phe	Ile	Asn	Ala	Ala	Met	Ala	Glu	Glu	Lys	Ser	Ile	Lys	Ala	Trp
			180					185					190		
Asp	Gly	Gly	Gly	Tyr	Ser	Thr	Leu	Glu	Lys	Val	Ser	His	Asn	Tyr	Phe
		195					200					205			
Leu	Phe	Gly	Arg	Ala	Val	His	Leu	Phe	Gln	Asp	Ser	Phe	Ser	Pro	Glu
	210					215					220				
His	Thr	Val	Arg	Leu	Pro	Gln	Asp	Asn	Tyr	Glu	Lys	Val	Arg	Gln	Val
225					230					235					240
Lys	Ala	Tyr	Leu	Cys	Ser	Glu	Gly	Ala	Glu	Gln	His	Thr	His	Asn	Ala
				245					250					255	
Gln	Asp	Ala	Ile	Ser	Phe	Thr	Ser	Gly	Asp	Val	Ile	Trp	Lys	Lys	Asn
		260						265					270		
Thr	Arg	Leu	Asp	Ala	Gly	Trp	Ser	Thr	Tyr	Lys	Pro	Ser	Asn	Met	Lys
		275					280						285		
Pro	Val	Ala	Leu	Val	Ala	Met	Glu	Ala	Ser	Lys	Asp	Leu	Trp	Ala	Ala
	290					295					300				
Phe	Ile	Arg	Thr	Met	Ala	Ala	Pro	Arg	Ser	Glu	Arg	Arg	Ala	Ile	Ala
305					310					315					320
Gln	Gln	Glu	Ala	Gln	Thr	Leu	Val	Asn	Asn	Trp	Leu	Ser	Phe	Asp	Glu
				325					330					335	
Gln	Glu	Met	Leu	Ser	Trp	Tyr	Asp	Glu	Glu	Thr	His	Arg	Asp	His	Thr
		340						345					350		
Tyr	Val	Leu	Glu	Pro	Gly	Gln	Asn	Gly	Pro	Gly	Ile	Ser	Met	Phe	Asp
		355					360					365			
Cys	Met	Val	Gly	Leu	Gly	Val	Thr	Ser	Gly	Ser	Gln	Ala	Ala	Arg	Val
	370					375					380				
Ala	Glu	Leu	Asp	Gln	Gln	Arg	Arg	Gln	Cys	Leu	Phe	Asn	Val	Lys	Ala
385					390					395					400
Thr	Thr	Gly	Tyr	Ser	Asp	Leu	Asn	Asp	Pro	His	Met	Asp	Ile	Pro	Tyr
				405					410					415	
Asn	Trp	Gln	Trp	Thr	Ser	Thr	Thr	Gln	Trp	Lys	Val	Pro	Ser	Ala	Ser
		420						425					430		
Trp	Thr	Ile	Pro	Gln	Leu	Pro	Ala	Asp	Ala	Gly	Lys	Lys	Val	Thr	Ile

	435		440		445										
Lys	Asn	Ala	Ile	Asn	Gly	Asn	Pro	Leu	Val	Ala	Pro	Ala	Gly	Val	Lys
	450				455					460					
His	Asn	Ser	Asp	Ile	Tyr	Ser	Ala	Pro	Gly	Glu	Ala	Ile	Glu	Phe	Ile
465					470					475					480
Phe	Val	Gly	Asp	Tyr	Asn	Asn	Glu	Ser	Tyr	Leu	Arg	Ser	Lys	Lys	Asp
			485						490					495	
Ala	Asp	Leu	Phe	Leu	Ser	Tyr	Ser	Ala	Val	Ser	Gly	Lys	Gly	Leu	Leu
		500						505					510		
Tyr	Asn	Thr	Pro	Asn	Gln	Ala	Gly	Tyr	Arg	Val	Lys	Pro	Ala	Gly	Val
	515						520				525				
Leu	Trp	Thr	Ile	Glu	Asn	Thr	Tyr	Trp	Asn	Asp	Phe	Leu	Trp	Phe	Asn
	530					535					540				
Ser	Ser	Asn	Asn	Arg	Ile	Tyr	Val	Ser	Gly	Thr	Gly	Asp	Ala	Asn	Lys
545					550					555					560
Leu	His	Ser	Gln	Trp	Ile	Ile	Asp	Gly	Leu	Lys					
			565						570						

<210> 23
 <211> 1473
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 23
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 cccctcaccg gcttcaccgg caccgcttac cagcgccagg atacgggcca ggtggatcatc 180
 gcctaccgcg gcacggaatt cgaccgcgaa cccgtgcgcg atggcgggcgt cgacgcaggc 240
 atggtgttgc ttggcgctcaa cgcccagtc cctgcatccg aggtattcac ccgcgaagtg 300
 atcgaaaagg cgaagcacga agccgagctc aacgatcgcg agccgaagat caccgtcacc 360
 gggcattccc tcggcgccac cctcgccgaa atcaatgccg cgaaatacgg cctccacggc 420
 gaaaccttca atgcctacgg tgcggccagc ctcaaggcca tccccgaggg cggcgacacg 480
 gtgatcgacc atgtccgcgc cggcgatctc gtcagcgccg ccagcccgca ctacgggcag 540
 gtgctgtgtg acgcagctca gcaggatata gataccctgc aacatgccgg ctaccgcgac 600
 gacagtggca tcttcagcct gcgcaacccc atcaaggcca cggatttcga cgcccacgcg 660
 atcgataact tcgtgcccga cagcaagctg cttggccaat cgatcatcgc tcttgagaac 720
 gaagcccgtt acgaagccca caagggcgat atcgatcgct atcgcgatga cgtggccgat 780
 atccgaaaag gcatctccgc tccctgggaa atccccaaagg ccgtcggcga gctgaaggac 840
 aagctcgaac acgaagcctt cgagctggcc ggcaagggga tctcgccgt cgagcacggt 900
 gtgcccaggg tcgttcacga ggcgaaggaa gggttcgatc atctcaagga aggcttgac 960
 caggtcaggg aagagatcag cgagggcac cagcccgctg aagagaaggc ttccagcgca 1020
 tggcacaccc tcaaccaccc gaaggaatgg ttcgagcagc acaaacctca agtgaatctc 1080
 gaccatcccc agcatccaga caacgccttg ttcaagcagg cgcaggggcg ggtacacgcc 1140
 ctcgatgcca cgcaaggccg cacgccagat aggacgagcg accagatcgc aggttctctg 1200
 gtgggtcgcg cgcgacgcga tgggtctcgag cgggtggacc gcgccgtgct cagcgatgac 1260
 actagccggc tctacggcgt gcagggtgcg acggattcgc ctttgaagca gttcaccgag 1320
 gtgaacacga cagtggcggc gcaaactca ctgcagcaaa gcagccaggc atggcagcag 1380
 caagcagaga tcgcgcgaca gaaccaggca accagccagg ctacgcgcat ggaaccgcag 1440
 gtgccccccg aggcaccggc acatggcatg taa 1473

<210> 24
 <211> 490
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 24
 Met Thr Ile Arg Ser Thr Asp Tyr Ala Leu Leu Ala Gln Glu Ser Tyr
 1 5 10 15

His	Asp	Ser	Gln	Val	Asp	Ala	Asp	Val	Lys	Leu	Asp	Gly	Ile	Ser	Tyr	
			20					25					30			
Lys	Val	Phe	Ala	Thr	Thr	Asp	Asp	Pro	Leu	Thr	Gly	Phe	Gln	Ala	Thr	
		35					40					45				
Ala	Tyr	Gln	Arg	Gln	Asp	Thr	Gly	Glu	Val	Val	Ile	Ala	Tyr	Arg	Gly	
	50				55						60					
Thr	Glu	Phe	Asp	Arg	Glu	Pro	Val	Arg	Asp	Gly	Gly	Val	Asp	Ala	Gly	
65					70					75					80	
Met	Val	Leu	Leu	Gly	Val	Asn	Ala	Gln	Ser	Pro	Ala	Ser	Glu	Val	Phe	
			85						90					95		
Thr	Arg	Glu	Val	Ile	Glu	Lys	Ala	Lys	His	Glu	Ala	Glu	Leu	Asn	Asp	
			100					105					110			
Arg	Glu	Pro	Lys	Ile	Thr	Val	Thr	Gly	His	Ser	Leu	Gly	Gly	Thr	Leu	
		115					120					125				
Ala	Glu	Ile	Asn	Ala	Ala	Lys	Tyr	Gly	Leu	His	Gly	Glu	Thr	Phe	Asn	
	130					135					140					
Ala	Tyr	Gly	Ala	Ala	Ser	Leu	Lys	Gly	Ile	Pro	Glu	Gly	Gly	Asp	Thr	
145					150					155					160	
Val	Ile	Asp	His	Val	Arg	Ala	Gly	Asp	Leu	Val	Ser	Ala	Ala	Ser	Pro	
			165						170					175		
His	Tyr	Gly	Gln	Val	Arg	Val	Tyr	Ala	Ala	Gln	Gln	Asp	Ile	Asp	Thr	
			180					185					190			
Leu	Gln	His	Ala	Gly	Tyr	Arg	Asp	Asp	Ser	Gly	Ile	Phe	Ser	Leu	Arg	
		195					200					205				
Asn	Pro	Ile	Lys	Ala	Thr	Asp	Phe	Asp	Ala	His	Ala	Ile	Asp	Asn	Phe	
	210					215					220					
Val	Pro	Asn	Ser	Lys	Leu	Gly	Gln	Ser	Ile	Ile	Ala	Pro	Glu	Asn		
225				230					235					240		
Glu	Ala	Arg	Tyr	Glu	Ala	His	Lys	Gly	Met	Ile	Asp	Arg	Tyr	Arg	Asp	
			245						250					255		
Asp	Val	Ala	Asp	Ile	Arg	Lys	Gly	Ile	Ser	Ala	Pro	Trp	Glu	Ile	Pro	
		260						265					270			
Lys	Ala	Val	Gly	Glu	Leu	Lys	Asp	Lys	Leu	Glu	His	Glu	Ala	Phe	Glu	
		275					280					285				
Leu	Ala	Gly	Lys	Gly	Ile	Leu	Ala	Val	Glu	His	Gly	Val	Ala	Glu	Val	
	290					295					300					
Val	His	Glu	Ala	Lys	Glu	Gly	Phe	Asp	His	Leu	Lys	Glu	Gly	Leu	His	
305				310					315					320		
His	Val	Arg	Glu	Glu	Ile	Ser	Glu	Gly	Ile	His	Ala	Val	Glu	Glu	Lys	
			325						330					335		
Ala	Ser	Ser	Ala	Trp	His	Thr	Leu	Thr	His	Pro	Lys	Glu	Trp	Phe	Glu	
		340					345						350			
His	Asp	Lys	Pro	Gln	Val	Asn	Leu	Asp	His	Pro	Gln	His	Pro	Asp	Asn	
		355					360					365				
Ala	Leu	Phe	Lys	Gln	Ala	Gln	Gly	Ala	Val	His	Ala	Leu	Asp	Ala	Thr	
	370					375					380					
Gln	Gly	Arg	Thr	Pro	Asp	Arg	Thr	Ser	Asp	Gln	Ile	Ala	Gly	Ser	Leu	
385				390					395					400		
Val	Val	Ala	Ala	Arg	Arg	Asp	Gly	Leu	Glu	Arg	Val	Asp	Arg	Ala	Val	
			405					410						415		
Leu	Ser	Asp	Asp	Thr	Ser	Arg	Leu	Tyr	Gly	Val	Gln	Gly	Ala	Thr	Asp	
		420					425					430				
Ser	Pro	Leu	Lys	Gln	Phe	Thr	Glu	Val	Asn	Thr	Thr	Val	Ala	Ala	Gln	
		435					440					445				
Thr	Ser	Leu	Gln	Gln	Ser	Ser	Gln	Ala	Trp	Gln	Gln	Gln	Ala	Glu	Ile	
	450				455						460					
Ala	Arg	Gln	Asn	Gln	Ala	Thr	Ser	Gln	Ala	Gln	Arg	Met	Glu	Pro	Gln	
465				470					475						480	
Val	Pro	Pro	Gln	Ala	Pro	Ala	His	Gly	Met							
			485					490								

<210> 25
 <211> 1098
 . <212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 25

atgtg	cgc	cca	aag	ttaa	agt	caaaa	ata	aag	acaaa	aca	cagg	cag	ccc	aaaca	aat	ac	60							
cactt	caaga	acct	cg	tctt	cga	agg	cgg	g	gcg	tg	aaa	g	gcatt	gc	ccta	tgt	ggg	agcc	120					
ctt	acca	agc	tcg	acg	agga	agg	cat	cctt	caaaa	acatta	agc	gcg	tg	ggc	cgg	cac	ctca	180						
gcagg	agcaa	tgg	tgg	ccgt	cct	cg	tcg	ga	ttgg	gctt	cca	ccg	cta	agga	gata	agc	gac	240						
atc	ctgt	ggg	acat	caa	att	ccaga	act	ttt	ttaga	caact	cat	ggg	gcg	t	gata	cg	caac	300						
acca	atc	gtc	tg	ctg	acg	ga	ata	cgg	ctg	g	tata	agg	ggc	g	ag	tttt	tccg	cgac	ctcat	360				
gct	gatt	aca	tcaaa	agaaa	gac	ag	acg	at	ggc	gag	atta	ctt	tcg	ggg	ga	gtt	gg	agg	gcc	420				
atg	agaaa	ag	agg	gaag	cc	ctt	ctt	gg	aa	atcc	at	ctg	g	ttg	g	ctc	ca	gaca	480					
ggg	tatt	cca	gag	tgt	tcaa	ctc	caaaa	aac	acccc	aaat	g	tga	ag	tcg	c	gat	gc	cgcc	540					
cgc	at	ctcca	tgt	c	gata	acc	gct	gt	tttt	t	tcc	g	ctg	tga	gag	gcg	tga	agg	c	gac	600			
ca	ct	ctat	g	tg	acg	gtg	g	cttt	t	gg	ac	a	act	ac	gcca	tca	ag	at	ttt	cg	acc	660		
aa	act	cg	ttt	cg	acaaaa	aa	ca	caaaa	agg	aag	acc	gag	t	att	aca	acag	g	ct	ca	acc	g	720		
ca	agt	ga	acg	c	gaa	ag	ca	ac	a	acg	aat	ctg	t	ag	ag	tat	gt	ct	aca	aca	ag	780		
gag	act	ttg	g	ctt	ccg	ctt	gg	at	g	ccaaa	a	gag	g	ac	ct	ctt	cc	ca	acc	ac	g	840		
gat	g	cc	ctc	a	aaa	ag	aa	t	ca	ag	ag	ttt	t	ct	ct	taca	caa	ag	ctt	g	gtt	ttc	900	
ctc	at	cg	at	g	att	tcc	aga	acaa	tgt	ac	ac	ctg	cac	ag	cg	acg	act	gg	cag	cg	tac	gg	960	
atc	g	ac	ac	ac	tcg	gt	gc	ag	ctcc	att	g	ac	ttc	gt	ctg	caa	ac	aca	aac	gaa	aca	ag	1020	
ctt	g	tc	g	att	cgg	g	ct	acaa	ctac	acc	aca	gc	ct	ac	ctc	g	act	gg	t	acaa	ca	ac	g	1080
gata	aa	gc	cca	aca	ag	t	aa																1098	

<210> 26

<211> 365

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 26

Met	Cys	Ala	Lys	Val	Lys	Val	Val	Lys	Ile	Lys	Thr	Asn	Thr	Gly	Ser	
1				5					10					15		
Pro	Asn	Lys	Tyr	His	Phe	Lys	Asn	Leu	Val	Phe	Glu	Gly	Gly	Gly	Val	
			20					25						30		
Lys	Gly	Ile	Ala	Tyr	Val	Gly	Ala	Leu	Thr	Lys	Leu	Asp	Glu	Glu	Gly	
		35					40					45				
Ile	Leu	Gln	Asn	Ile	Lys	Arg	Val	Ala	Gly	Thr	Ser	Ala	Gly	Ala	Met	
	50					55					60					
Val	Ala	Val	Leu	Val	Gly	Leu	Gly	Phe	Thr	Ala	Lys	Glu	Ile	Ser	Asp	
65					70				75					80		
Ile	Leu	Trp	Asp	Ile	Lys	Phe	Gln	Asn	Phe	Leu	Asp	Asn	Ser	Trp	Gly	
			85					90						95		
Val	Ile	Arg	Asn	Thr	Asn	Arg	Leu	Leu	Thr	Glu	Tyr	Gly	Trp	Tyr	Lys	
			100					105						110		
Gly	Glu	Phe	Phe	Arg	Asp	Leu	Met	Ala	Asp	Tyr	Ile	Lys	Arg	Lys	Thr	
		115					120					125				
Asp	Asp	Gly	Glu	Ile	Thr	Phe	Gly	Glu	Leu	Glu	Ala	Met	Arg	Lys	Glu	
	130						135				140					
Gly	Lys	Pro	Phe	Leu	Glu	Ile	His	Leu	Val	Gly	Ser	Asp	Leu	Thr	Thr	
145					150					155					160	
Gly	Tyr	Ser	Arg	Val	Phe	Asn	Ser	Lys	Asn	Thr	Pro	Asn	Val	Lys	Val	
			165					170						175		
Ala	Asp	Ala	Ala	Arg	Ile	Ser	Met	Ser	Ile	Pro	Leu	Phe	Phe	Ser	Ala	
			180					185						190		
Val	Arg	Gly	Val	Gln	Gly	Asp	Asp	His	Leu	Tyr	Val	Asp	Gly	Gly	Leu	
		195					200					205				
Leu	Asp	Asn	Tyr	Ala	Ile	Lys	Ile	Phe	Asp	Gln	Ser	Lys	Leu	Val	Ser	
	210					215					220					
Asp	Lys	Asn	Asn	Lys	Arg	Lys	Thr	Glu	Tyr	Tyr	Asn	Arg	Leu	Asn	Gln	

225		230		235		240
Gln Val Asn Ala Lys	Ala Thr Lys Ser Lys	Thr Glu Ser Val Glu Tyr				
	245		250		255	
Val Tyr Asn Lys Glu	Thr Leu Gly Phe Arg	Leu Asp Ala Lys Glu Asp				
	260		265		270	
Ile Asn Leu Phe Leu	Asn His Asp Asp	Ala Pro Gln Lys Glu Ile Lys				
	275		280		285	
Ser Phe Phe Ser Tyr	Thr Lys Ala Leu Val	Ser Thr Leu Ile Asp Phe				
	290		295		300	
Gln Asn Asn Val His	Leu His Ser Asp Asp	Trp Gln Arg Thr Val Tyr				
305		310		315		320
Ile Asp Thr Leu Gly	Val Ser Ser Ile Asp	Phe Gly Leu Ser Asn Thr				
	325		330		335	
Thr Lys Gln Ala Leu	Val Asp Ser Gly Tyr	Asn Tyr Thr Thr Ala Tyr				
	340		345		350	
Leu Asp Trp Tyr Asn	Asn Asp Glu Asp	Lys Ala Asn Lys				
	355		360		365	

<210> 27
 <211> 1287
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 27

gtgtcgatta	ccgtttaccg	gaagccctcc	ggcggggtttg	gagcgatagt	tcctcaagcg	60
aaaattgaga	accttgtttt	cgagggcggc	ggaccaaagg	gcctggtcta	tgctggcgcg	120
gtcgagggttc	tcggcgaaag	gggactgctg	gaagggatcg	caaatgtcgg	cggcgcttca	180
gcaggcgcca	tgaccgctct	agccgtcggt	ctgggactga	gccccaggga	aattcgcgcg	240
gtcgtcttta	accagaacat	tgcggacctc	accgatatcg	agaagaccgt	cgagccgtcc	300
tccgggatta	caggcatggt	caagagcggt	ttcaagaagg	gttggcaggc	ggtgcgcaac	360
gtaaccggca	cctctgacga	gcgcggggcg	gggctctatc	gcggcgagaa	ggtgcgagcc	420
tggtacagag	acctgattgc	acagcgagtc	gaggcggggc	gctccgaggt	cctgagccga	480
gccgacgccg	atggacggaa	cttctatgag	aaagccgccg	caaagaaggg	cgccctgaca	540
tttgccgagc	ttgatcgggt	ggcgcaaatg	gcgcggggcc	tgcggttcg	ccgcctggcc	600
ttcaccggaa	ccaacttcac	gtcgaagaag	ctcgaagtgt	tcagtctgca	cgagaccccg	660
gacatgccga	tcgacgtcgc	ggtacgcata	tccgcatcgt	tgccatggtt	tttcaaattc	720
gtgaaatgga	acggctccga	atacatagat	ggcggctgcc	tgtcgaactt	cccaatgccg	780
atattcgacg	tcgatcccta	tcgtggcgac	gcatacgtcg	aaatccggct	cggcattctt	840
ggccagaacc	tcgcgacgct	cggtttcaag	gtcgacagcg	aggaggagat	ccgcgacatt	900
ctctggcgta	gccccgagag	cacgagcgac	ggctttttcc	aaggcatcct	gtcaagcggt	960
aaagcttctg	cagaacactg	ggtcgtcgcc	atcgacgtcg	aaggcgccac	ccgcgcgtcg	1020
aacgtggccg	ttcacggcaa	gtatgctcag	cgaacgatcc	agataccgga	cctcggatat	1080
agcacgttca	agttcgatct	ttcggaacgt	gacaaggagc	gcattggcga	ggccggcgca	1140
aaggccacgc	gggaatggct	ggcgctgtac	ttcgacgacg	ccggaataga	ggtcgaattt	1200
tctgatccga	acgaattgcg	cgccagtttg	tccgacgccg	cattcgcaga	cctcgaggat	1260
tcgtttcgag	ccttgatcgc	ggcctag				1287

<210> 28
 <211> 428
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 28

Met Ser Ile Thr Val Tyr Arg Lys Pro Ser Gly Gly Phe Gly Ala Ile	
1	5 10 15
Val Pro Gln Ala Lys Ile Glu Asn Leu Val Phe Glu Gly Gly Pro	
	20 25 30
Lys Gly Leu Val Tyr Val Gly Ala Val Glu Val Leu Gly Glu Arg Gly	

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<210> 29
<211> 753
<212> DNA
<213> Unknown

<220>
<223> Obtained from an environmental sample.
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20

ttggtgaatg	acctaaccat	gatattagga	ggtattgggt	ctgttgctgc	aatccaacca	360
acgattaaca	tggcacaaga	actcatcgac	caatatggag	tgaatttgat	tacaggtcac	420
tcccttgag	gctacatgac	tgagatcatc	gccaccaatc	gtggacttcc	aggtattgca	480
ttttgcgac	caggttcaaa	tggtcccat	gtaaaattag	gtggacaaga	gacacctggc	540
tttcacaatg	tgaactttga	acatgatcca	gcaggtaacg	ttatgacggg	ggtttatact	600
catgtccaat	ggagtattta	tgtaggatgt	gatggtatga	ctcatgggat	tgaaaatatg	660
gtgaattatt	ttaaagataa	aagagattta	accaatcgca	atattcaagg	aagaagtga	720
agtcataata	cgggttatta	ttacccaaaa	taa			753

<210> 30
 <211> 250
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 30
 Met Gly Asn Gly Ala Ala Val Gly Ser Asn Asp Asn Gly Arg Glu Glu
 1 5 10 15
 Ser Val Tyr Val Leu Ser Val Ile Ala Cys Asn Val Tyr Tyr Leu Gln
 20 25 30
 Lys Cys Glu Gly Gly Ala Ser Arg Asp Ser Val Ile Arg Glu Ile Asn
 35 40 45
 Ser Gln Thr Gln Pro Leu Gly Tyr Glu Ile Val Ala Asp Ser Ile Arg
 50 55 60
 Asp Gly His Ile Gly Ser Phe Ala Cys Lys Met Ala Val Phe Arg Asn
 65 70 75 80
 Asn Gly Asn Gly Asn Cys Val Leu Ala Ile Lys Gly Thr Asp Met Asn
 85 90 95
 Asn Ile Asn Asp Leu Val Asn Asp Leu Thr Met Ile Leu Gly Gly Ile
 100 105 110
 Gly Ser Val Ala Ala Ile Gln Pro Thr Ile Asn Met Ala Gln Glu Leu
 115 120 125
 Ile Asp Gln Tyr Gly Val Asn Leu Ile Thr Gly His Ser Leu Gly Gly
 130 135 140
 Tyr Met Thr Glu Ile Ile Ala Thr Asn Arg Gly Leu Pro Gly Ile Ala
 145 150 155 160
 Phe Cys Ala Pro Gly Ser Asn Gly Pro Ile Val Lys Leu Gly Gly Gln
 165 170 175
 Glu Thr Pro Gly Phe His Asn Val Asn Phe Glu His Asp Pro Ala Gly
 180 185 190
 Asn Val Met Thr Gly Val Tyr Thr His Val Gln Trp Ser Ile Tyr Val
 195 200 205
 Gly Cys Asp Gly Met Thr His Gly Ile Glu Asn Met Val Asn Tyr Phe
 210 215 220
 Lys Asp Lys Arg Asp Leu Thr Asn Arg Asn Ile Gln Gly Arg Ser Glu
 225 230 235 240
 Ser His Asn Thr Gly Tyr Tyr Tyr Pro Lys
 245 250

<210> 31
 <211> 1422
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

atgaaaaaga	aattatgtac	atgggctctc	gtaacagcga	tatcttctgg	agttgttgcg	60
attccaaccg	tagcatctgc	ttgcggaatg	ggtgaagtaa	tgaacagga	ggatcaagag	120
cacaaacgtg	tgaagagatg	gtctgcggag	catccgcacc	atgctaata	aagcacgcac	180
ttatggattg	ctcgaaatgc	gattcaaatt	atgagtcgta	atcaagataa	gacggttcaa	240

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gaaaatgaat tacaattctt aaaaatacct gaatataagg agttatttga aagagggcct 300
tatgatgccg attatcttga tgagtttaac gatggaggta caggtacaat cgggtattgat 360
gggctaatta aaggaggctg gaaatctcat ttctatgata ctgatacgaa aaagaactat 420
aaaggagaag aagaaccaac agccctttcg caaggggata aatattttaa attagcagga 480
gattatttta agaaagaaga ttggaaacaa gctttctatt atttaggtgt tgcgacgcat 540
tacttcacag atgctactca gccaatgcat gctgctaatt ttacagctgt cgacatgagt 600
gcaataaagt ttcatagcgc ttttgaaaat tatgtaacga cagttcagac accgtttgaa 660
gtgaaggatg ataagggaac atataatttg gtcaattctg atgatccgaa gcagtggata 720
catgaaacag cgaaactcgc aaaagcagaa attatgaata ttactagtga taatattaaa 780
tctcaatata ataaaggaaa caaagatctt tggcaacaag aagttatgcc agctgtccag 840
aggagttag agaaagcgca aagaaacacg gcgggattta ttcatttatg gtttaaaaca 900
tatgttggca aaactgcagc tgaagatatt gaaactacac aggtaaaaga ttctaattgga 960
gaagcaatac aagaacaaaa aaaatactac gttgtgccta gtgagttttt aaatagaggt 1020
ttgacctttg aggtatatgc ttcgaatgac tacgcactat tatctaatac cgtagatgat 1080
aataaagttc atggtacacc tgttcagttt gtttttgata aagagaataa cggaattggt 1140
catcggggag aaagtgtact gctgaaaatg acgcaatcta actatgatga ttatgtattt 1200
cttaattact ctaatatgac aaattgggta catcttgcca aacgaaaaac aaatactgca 1260
cagtttaaaag tgtatccaaa tccggataac tcatctgaat atttcctata tacagatgga 1320
taccgggtaa attatcaaga aaatggtaac gggaagagct ggattgagtt aggaaagaaa 1380
acggataaac cgaaagcgtg gaaatttcaa caggcagaat aa 1422

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<210> 32
 <211> 473
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(20)

<400> 32

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Gly	Val	Val	Ala	Ile	Pro	Thr	Val	Ala	Ser	Ala	Cys	Gly	Met	Gly	Glu
			20					25					30		
Val	Met	Lys	Gln	Glu	Asp	Gln	Glu	His	Lys	Arg	Val	Lys	Arg	Trp	Ser
		35					40					45			
Ala	Glu	His	Pro	His	His	Ala	Asn	Glu	Ser	Thr	His	Leu	Trp	Ile	Ala
	50					55					60				
Arg	Asn	Ala	Ile	Gln	Ile	Met	Ser	Arg	Asn	Gln	Asp	Lys	Thr	Val	Gln
65				70					75					80	
Glu	Asn	Glu	Leu	Gln	Phe	Leu	Lys	Ile	Pro	Glu	Tyr	Lys	Glu	Leu	Phe
			85					90					95		
Glu	Arg	Gly	Leu	Tyr	Asp	Ala	Asp	Tyr	Leu	Asp	Glu	Phe	Asn	Asp	Gly
			100				105					110			
Gly	Thr	Gly	Thr	Ile	Gly	Ile	Asp	Gly	Leu	Ile	Lys	Gly	Gly	Trp	Lys
			115				120					125			
Ser	His	Phe	Tyr	Asp	Pro	Asp	Thr	Lys	Lys	Asn	Tyr	Lys	Gly	Glu	Glu
	130					135					140				
Glu	Pro	Thr	Ala	Leu	Ser	Gln	Gly	Asp	Lys	Tyr	Phe	Lys	Leu	Ala	Gly
145				150					155						160
Asp	Tyr	Phe	Lys	Lys	Glu	Asp	Trp	Lys	Gln	Ala	Phe	Tyr	Tyr	Leu	Gly
			165					170						175	
Val	Ala	Thr	His	Tyr	Phe	Thr	Asp	Ala	Thr	Gln	Pro	Met	His	Ala	Ala
			180				185					190			
Asn	Phe	Thr	Ala	Val	Asp	Met	Ser	Ala	Ile	Lys	Phe	His	Ser	Ala	Phe
	195					200						205			
Glu	Asn	Tyr	Val	Thr	Thr	Val	Gln	Thr	Pro	Phe	Glu	Val	Lys	Asp	Asp
	210					215					220				
Lys	Gly	Thr	Tyr	Asn	Leu	Val	Asn	Ser	Asp	Asp	Pro	Lys	Gln	Trp	Ile
225				230					235					240	
His	Glu	Thr	Ala	Lys	Leu	Ala	Lys	Ala	Glu	Ile	Met	Asn	Ile	Thr	Ser

				245					250					255			
Asp	Asn	Ile	Lys	Ser	Gln	Tyr	Asn	Lys	Gly	Asn	Lys	Asp	Leu	Trp	Gln		
			260					265					270				
Gln	Glu	Val	Met	Pro	Ala	Val	Gln	Arg	Ser	Leu	Glu	Lys	Ala	Gln	Arg		
		275					280					285					
Asn	Thr	Ala	Gly	Phe	Ile	His	Leu	Trp	Phe	Lys	Thr	Tyr	Val	Gly	Lys		
	290				295						300						
Thr	Ala	Ala	Glu	Asp	Ile	Glu	Thr	Thr	Gln	Val	Lys	Asp	Ser	Asn	Gly		
305					310					315					320		
Glu	Ala	Ile	Gln	Glu	Gln	Lys	Lys	Tyr	Tyr	Val	Val	Pro	Ser	Glu	Phe		
			325						330						335		
Leu	Asn	Arg	Gly	Leu	Thr	Phe	Glu	Val	Tyr	Ala	Ser	Asn	Asp	Tyr	Ala		
		340						345					350				
Leu	Leu	Ser	Asn	His	Val	Asp	Asp	Asn	Lys	Val	His	Gly	Thr	Pro	Val		
	355					360						365					
Gln	Phe	Val	Phe	Asp	Lys	Glu	Asn	Asn	Gly	Ile	Val	His	Arg	Gly	Glu		
	370				375						380						
Ser	Val	Leu	Leu	Lys	Met	Thr	Gln	Ser	Asn	Tyr	Asp	Asp	Tyr	Val	Phe		
385					390					395					400		
Leu	Asn	Tyr	Ser	Asn	Met	Thr	Asn	Trp	Leu	His	Leu	Ala	Lys	Arg	Lys		
			405					410					415				
Thr	Asn	Thr	Ala	Gln	Phe	Lys	Val	Tyr	Pro	Asn	Pro	Asp	Asn	Ser	Ser		
		420					425						430				
Glu	Tyr	Phe	Leu	Tyr	Thr	Asp	Gly	Tyr	Pro	Val	Asn	Tyr	Gln	Glu	Asn		
	435				440						445						
Gly	Asn	Gly	Lys	Ser	Trp	Ile	Glu	Leu	Gly	Lys	Lys	Thr	Asp	Lys	Pro		
	450				455						460						
Lys	Ala	Trp	Lys	Phe	Gln	Gln	Ala	Glu									
465					470												

<210> 33
 <211> 792
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 33	
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cagcggttca ccccgcgaga ctccggtctc gtgggtgggat gctcggtcgg agcttttaaac	120
gccgcggggg ttgccacact gggtagccat ggcacaaaag acctctggca agggatcagg	180
agtcgagatg acatcctgtc ccgtgtcttg tggccgtttg gtcagacgg gatcttctcg	240
cagaagcctc ttgaaaagct cgtctccaaa gcatgcacgg gtccctgctcg ggtgccggtc	300
cacgtggcga cggctgcct tgaacgcggc cttgtccact acgggatctc cggggactct	360
gactttgaga agaaagtgtc ggcacgggtc gcgatcccag gcgtgggtgaa gccagttaag	420
atccatggcg accactacgt cgacggtggg gtcagagaga tctgtccgct gcgtcgagcc	480
atcgacctgg gcgccacgga gatcacagtc atcatgtgcg ctccggaata catcccgacc	540
tggtcgcgta gttcctcgct gttcccgttt gtgaacgtga tgatccggtc tctcgacatc	600
ctgaccgatg agatcctggt caacgacatc gccgagtgcg tggcaaagaa caagatgcc	660
ggtaaagctc acgtaaagct caccatctac cgccgaaga aagagctcat gggcacgctc	720
gactttgacc ccaaagccat cgccgcaggg atcaaggcag gcaccgaagc ccagccaagg	780
ttctgggagt aa	792

<210> 34
 <211> 263
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 34
 Met Arg Ala Leu Val Leu Ala Gly Gly Gly Ala Lys Gly Ser Phe Gln

1	5	10	15
Val Gly Val	Leu Gln Arg Phe Thr	Pro Ala Asp Phe Gly	Leu Val Val
	20	25	30
Gly Cys Ser	Val Gly Ala Leu Asn	Ala Ala Gly Phe Ala	His Leu Gly
	35	40	45
Ser His Gly	Ile Lys Asp Leu Trp	Gln Gly Ile Arg Ser	Arg Asp Asp
	50	55	60
Ile Leu Ser	Arg Val Trp Trp	Pro Phe Gly Ser	Asp Gly Ile Phe Ser
65	70	75	80
Gln Lys Pro	Leu Glu Lys Leu Val	Ser Lys Ala Cys Thr	Gly Pro Ala
	85	90	95
Arg Val Pro	Val His Val Ala Thr	Val Cys Leu Glu Arg	Gly Leu Val
	100	105	110
His Tyr Gly	Ile Ser Gly Asp Ser	Asp Phe Glu Lys Lys	Val Leu Ala
	115	120	125
Ser Ala Ala	Ile Pro Gly Val	Lys Pro Val Lys Ile	His Gly Asp
	130	135	140
His Tyr Val	Asp Gly Gly Val	Arg Glu Ile Cys Pro	Leu Arg Arg Ala
145	150	155	160
Ile Asp Leu	Gly Ala Thr Glu Ile	Thr Val Ile Met Cys	Ala Pro Glu
	165	170	175
Tyr Ile Pro	Thr Trp Ser Arg Ser	Ser Ser Leu Phe Pro	Phe Val Asn
	180	185	190
Val Met Ile	Arg Ser Leu Asp Ile	Leu Thr Asp Glu Ile	Leu Val Asn
	195	200	205
Asp Ile Ala	Glu Cys Val Ala Lys	Asn Lys Met Pro Gly	Lys Arg His
	210	215	220
Val Lys Leu	Thr Ile Tyr Arg Pro	Lys Lys Glu Leu Met	Gly Thr Leu
225	230	235	240
Asp Phe Asp	Pro Lys Ala Ile Ala	Ala Gly Ile Lys Ala	Gly Thr Glu
	245	250	255
Ala Gln Pro	Arg Phe Trp Glu		
	260		

<210> 35
 <211> 1389
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 35

atgcccgagc	cgccccgcgc	atgccgtttgc	gattgcgccct	gcgagcgcgca	ccagcacctt	60
ttttgcaagg	gacccaagcg	tatcctcgcg	ctcgacggcg	gcggcggtgcg	cggcgcgctc	120
agcgtcgcat	tcctcgaacg	gatcgaggcg	gtgctcgagg	ccgggctcgg	acgcaaggtg	180
ctgctcggcc	actggttcga	cctgatcggc	ggcacctcga	cgggcgccat	catcggcggc	240
gcgctggcga	tgggattcgc	ggccgaggac	gtccaaagat	tctatcacga	gctcgcgccg	300
cgggtgttca	ggcatccgct	cctgcgcac	ggtctcctgc	gcccgttccg	cgcgaaattc	360
gacgcccgc	tgctgcgcga	ggagatccac	cgcacatcgc	gcgacagcac	gctcggcgac	420
aaagcgtga	tgaccgggtt	cgcgctcgtc	gccaagcgga	tggaacaccg	cagcacctgg	480
atcctcgcca	acaacaagcg	cagcaaatac	tgggaagggc	gggacggcgt	cgtcggcaac	540
aaggattatc	tcctcggcag	cctcattcgc	gcgagcacgg	cggcgcgcgt	gtatttcgac	600
cccgaggagg	tcgtgatcgc	ggaggcccgc	aaggacatcg	agggcatcag	gggcctgttc	660
gtcgacggcg	gcgtcacgcc	gcacaacaat	ccttcgctcg	cgatgctgct	gctggcgctg	720
ctcgacgcct	accggctgcg	ctgggaaacg	ggaccggaca	agctcacggg	cgtctcgatc	780
ggcactggaa	cgcacgcgga	ccgcgtcggt	cccgcacgcg	tcggcatggg	caagaacgcg	840
aagatcgcg	tgccgcgccat	gagctcgctg	atgaacgacg	tgacagagct	cgcgctcacg	900
cagatgcagt	acctcgggtga	gacgctcacc	ccgtggcgca	tcaacgacga	gctcggcgac	960
atgcggaccg	agcggccgcg	gcaaggcaag	ctcttcgcgt	tcctccgcta	cgacgtccgg	1020
ctggagctcg	attggatcaa	cgaggacgag	gagcgccggc	gcaagatcaa	gaacaaattc	1080
aagcgcgagc	cgaccgagac	cgacctgcga	gcctcgacga	tccgacgacc		1140
atcccggaac	tctacatgct	tgcccaggtc	gcggccgagg	agcaggtcaa	ggcggagcac	1200
tggctcggcg	acgtgccgga	gtggagcgaa	ggcgcgcgcc	cgtgtgcgcc	gcgccggcac	1260

ctgccgccga	cgccgccggg	ccgctccgag	gattcggcgc	gcttccgggc	cgagaaggcc	1320
gtcggcgagt	ggctcagttt	tgcgcgcgcg	aacatcacgc	gcctcatgtc	gcggaagccg	1380
ccgggttga						1389

<210> 36
 <211> 462
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 36
 Met Pro Glu Pro Pro Ala Ala Cys Arg Cys Asp Cys Ala Cys Glu Arg
 1 5 10 15
 Asp Gln His Leu Phe Cys Lys Gly Pro Lys Arg Ile Leu Ala Leu Asp
 20 25 30
 Gly Gly Gly Val Arg Gly Ala Val Ser Val Ala Phe Leu Glu Arg Ile
 35 40 45
 Glu Ala Val Leu Glu Ala Arg Leu Gly Arg Lys Val Leu Leu Gly His
 50 55 60
 Trp Phe Asp Leu Ile Gly Gly Thr Ser Thr Gly Ala Ile Ile Gly Gly
 65 70 75 80
 Ala Leu Ala Met Gly Phe Ala Ala Glu Asp Val Gln Arg Phe Tyr His
 85 90 95
 Glu Leu Ala Pro Arg Val Phe Arg His Pro Leu Leu Arg Ile Gly Leu
 100 105 110
 Leu Arg Pro Phe Arg Ala Lys Phe Asp Ala Arg Leu Leu Arg Glu Glu
 115 120 125
 Ile His Arg Ile Ile Gly Asp Ser Thr Leu Gly Asp Lys Ala Leu Met
 130 135 140
 Thr Gly Phe Ala Leu Val Ala Lys Arg Met Asp Thr Gly Ser Thr Trp
 145 150 155 160
 Ile Leu Ala Asn Asn Lys Arg Ser Lys Tyr Trp Glu Gly Arg Asp Gly
 165 170 175
 Val Val Gly Asn Lys Asp Tyr Leu Leu Gly Ser Leu Ile Arg Ala Ser
 180 185 190
 Thr Ala Ala Pro Leu Tyr Phe Asp Pro Glu Glu Val Val Ile Ala Glu
 195 200 205
 Ala Arg Lys Asp Ile Glu Gly Ile Arg Gly Leu Phe Val Asp Gly Gly
 210 215 220
 Val Thr Pro His Asn Asn Pro Ser Leu Ala Met Leu Leu Leu Ala Leu
 225 230 235 240
 Leu Asp Ala Tyr Arg Leu Arg Trp Glu Thr Gly Pro Asp Lys Leu Thr
 245 250 255
 Val Val Ser Ile Gly Thr Gly Thr His Arg Asp Arg Val Val Pro Asp
 260 265 270
 Thr Leu Gly Met Gly Lys Asn Ala Lys Ile Ala Leu Arg Ala Met Ser
 275 280 285
 Ser Leu Met Asn Asp Val His Glu Leu Ala Leu Thr Gln Met Gln Tyr
 290 295 300
 Leu Gly Glu Thr Leu Thr Pro Trp Arg Ile Asn Asp Glu Leu Gly Asp
 305 310 315 320
 Met Arg Thr Glu Arg Pro Pro Gln Gly Lys Leu Phe Arg Phe Leu Arg
 325 330 335
 Tyr Asp Val Arg Leu Glu Leu Asp Trp Ile Asn Glu Asp Glu Glu Arg
 340 345 350
 Arg Arg Lys Ile Lys Asn Lys Phe Lys Arg Glu Leu Thr Glu Thr Asp
 355 360 365
 Met Ile Arg Leu Arg Ser Leu Asp Asp Pro Thr Thr Ile Pro Asp Leu
 370 375 380
 Tyr Met Leu Ala Gln Val Ala Ala Glu Glu Gln Val Lys Ala Glu His
 385 390 395 400
 Trp Leu Gly Asp Val Pro Glu Trp Ser Glu Gly Ala Arg Pro Cys Ala

				405						410					415				
Pro	Arg	Arg	His	Leu	Pro	Pro	Thr	Pro	Pro	Gly	Arg	Ser	Glu	Asp	Ser				
			420					425					430						
Ala	Arg	Phe	Arg	Ala	Glu	Lys	Ala	Val	Gly	Glu	Trp	Leu	Ser	Phe	Ala				
		435					440					445							
Arg	Ala	Asn	Ile	Thr	Arg	Leu	Met	Ser	Arg	Lys	Pro	Pro	Gly						
	450					455					460								

<210> 37
 <211> 1329
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 37
 atgagaaatt tcagcaaggg attgaccagt attttgctta gcatagcgac atccaccagt 60
 gcgatggcct ttaccagat cggggccggc ggagcgattc cgatgggcca tgagtggcta 120
 acccgccgct cggcgctgga actgctgaat gccgacaatc tggtcggcaa tgaccgggcc 180
 gaccacgct tgggctggag cgaaggtctc gccacaatc tcgatctctc gaatgccag 240
 aacgaagtgc agcgcatcaa gagcattacc aagagccacg ccctgtatga gccgcgttac 300
 gatgacgttt tcgccgccat cgtcggcgag cgctggggtg ataccgccgg tttcaacgtg 360
 gccaaggcca ccgtcggcaa gatcgattgc ttcagcgccg tcgcgcaaga gcccgcgat 420
 gtgcaacaag accatttcat gcgccgttat gacgacgtgg gtggacaagg gggcgtgaac 480
 gctgcccgcc gcgcgcagca gcgctttatc aatcacttcg tcaacgcagc catggccgaa 540
 gagaagagca tcaaggcatg ggatggcggc ggttattctt cgctggaaaa agtcagccac 600
 aactacttct tgtttggcgg cgccgttcat ttgttccagg attctttcag ccccgaaacac 660
 accgtgcgcc tgcctgaaga caattacgtc aaagtccgtc aggtcaaggc gtatctctgc 720
 tctgaagggtg ccgaacagca tacgcacaac acgcaagatg ccatcaactt caccagcggc 780
 gatgtcatct ggaaacagaa caccggtctg gatgcaggct ggagcaccta caaggccagc 840
 aacatgaagc cgggtggcatt ggttgccctc gaagccagca aagatttgtg ggccgccttt 900
 attcgcacca tggccgtttc ccgcgaggag cgtcgcgcgg tcgccgaaca ggaagcgag 960
 gctctcgtca atcaactggt gtcgttcgac gaacaggaaa tgctgaactg gtacgaagaa 1020
 gaagagcacc gcgatcatac gtacgtcaag gaaccgggcc agagcggccc aggttcgtcg 1080
 ttattcgtatt gcattggttg tctgggtgtg gcctcgggca gtcaggcgca acgggtggcg 1140
 gaactcgatc agcaacggcg ccaatgtttg ttcaacgtca aggcgctac tggctatggc 1200
 gatctgaatg atccacacat ggatattccg tacaactggc aatgggtgtc gtcgacgcaa 1260
 tggaaaatcc ctgcggccga ctggaaaatc ccgcagctgc ccgccgattc agggaaatca 1320
 gtcgtcatc 1329

<210> 38
 <211> 443
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(23)

<400> 38
 Met Arg Asn Phe Ser Lys Gly Leu Thr Ser Ile Leu Leu Ser Ile Ala
 1 5 10 15
 Thr Ser Thr Ser Ala Met Ala Phe Thr Gln Ile Gly Ala Gly Gly Ala
 20 25 30
 Ile Pro Met Gly His Glu Trp Leu Thr Arg Arg Ser Ala Leu Glu Leu
 35 40 45
 Leu Asn Ala Asp Asn Leu Val Gly Asn Asp Pro Ala Asp Pro Arg Leu
 50 55 60
 Gly Trp Ser Glu Gly Leu Ala Asn Asn Leu Asp Leu Ser Asn Ala Gln
 65 70 75 80
 Asn Glu Val Gln Arg Ile Lys Ser Ile Thr Lys Ser His Ala Leu Tyr


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aacagcggct actccggcat ccaggccatc gccaacgagg acgggtccga cggcaccgtg      600
cgcatcggca ccgccaacct gcaggcggcg cttgcgaagg tgggtgtccc gcccgggccc      660
gtcgcgccgg tgggtgcagtt ccgcaacatc gcgggcgcca ccgcgttcgc catcgtcgac      720
ggcgacaacc attccgacat caccatgaag gacaagccgt cgaagaccgg catccgcgag      780
gaactgatcc tcggcgcgct gaaggtgctc gacgccgact tccccgagaa cgccgacggc      840
gcgttcccgt ggcaggcgaa gctcgacgcg aaggccgggt cggccaaggt gtcttcgccc      900
gggcgccaga acaccgtggt gcacctcacc gacagcttcg gcgacgacgt cgtcgatttc      960
ttcttcgagt tctggcgag cgaacgcagc gacaagggtg tcgagcagcg cttctacaag     1020
gacgtcatcg acgacgtgca cgtgtacgac ggcaacggcg cgtggcgctc gctcaacctc     1080
gacctcgaca agttcgaggc gctgcgcaag gacccgaagc tcggcttcga gaaactgctg     1140
gtcagcgtgt tcgcctcgcc cgcgaagaag ggcgacgcca aggtcggcta cagcaccgcc     1200
accggccgcg acatcggcgc ctggcacgtc gaaggccgtg acttcgcaa ggccttcacg     1260
ccgcaccgca ccctgttcgt cgacatcgag atcccacgca tcgtcgacga cgcggtgttc     1320
cggttccggg aatag                                     1335

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<210> 40
 <211> 444
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

```

<400> 40
Met Ala Asn Pro Ile Val Ile Ile His Gly Trp Ser Asp Asp Phe Gly
 1          5          10          15
Ser Phe Arg Lys Leu Arg Asp Phe Leu Ser Thr Asn Leu Gly Val Pro
          20          25          30
Ala Lys Ile Leu Lys Leu Gly Asp Trp Ile Ser Leu Asp Asp Asp Val
          35          40          45
Gly Tyr Ala Asp Ile Ala Met Ala Leu Glu Arg Ala Trp Lys Ala Glu
          50          55          60
Lys Leu Pro Thr Ala Pro Arg Ser Val Asp Val Val Val His Ser Thr
          65          70          75          80
Gly Ala Leu Val Val Arg Glu Trp Met Thr Arg Tyr His Ala Pro Glu
          85          90          95
Thr Val Pro Ile Gln Arg Phe Leu His Leu Ala Pro Ala Asn Phe Gly
          100          105          110
Ser His Leu Ala His Lys Gly Arg Ser Phe Ile Gly Arg Ala Val Lys
          115          120          125
Gly Trp Lys Thr Gly Phe Glu Thr Gly Thr Arg Ile Leu Arg Gly Leu
          130          135          140
Glu Leu Ala Ser Pro Tyr Ser Arg Ala Leu Ala Glu Arg Asp Leu Phe
          145          150          155          160
Val Ala Pro Ser Lys Arg Trp Tyr Gly Ala Gly Arg Ile Leu Ala Thr
          165          170          175
Val Leu Val Gly Asn Ser Gly Tyr Ser Gly Ile Gln Ala Ile Ala Asn
          180          185          190
Glu Asp Gly Ser Asp Gly Thr Val Arg Ile Gly Thr Ala Asn Leu Gln
          195          200          205
Ala Ala Leu Ala Lys Val Val Phe Pro Pro Gly Pro Val Ala Pro Val
          210          215          220
Val Gln Phe Arg Asn Ile Ala Gly Ala Thr Ala Phe Ala Ile Val Asp
          225          230          235          240
Gly Asp Asn His Ser Asp Ile Thr Met Lys Asp Lys Pro Ser Lys Thr
          245          250          255
Gly Ile Arg Glu Glu Leu Ile Leu Gly Ala Leu Lys Val Arg Asp Ala
          260          265          270
Asp Phe Pro Glu Asn Ala Asp Gly Ala Phe Pro Trp Gln Ala Lys Leu
          275          280          285
Asp Ala Lys Ala Gly Ala Ala Lys Val Ser Ser Pro Gly Arg Gln Asn
          290          295          300
Thr Val Val His Leu Thr Asp Ser Phe Gly Asp Asp Val Val Asp Phe
          305          310          315          320

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Phe	Phe	Glu	Phe	Trp	Arg	Ser	Glu	Arg	Ser	Asp	Lys	Val	Phe	Glu	Gln
				325					330					335	
Arg	Phe	Tyr	Lys	Asp	Val	Ile	Asp	Asp	Val	His	Val	Tyr	Asp	Gly	Asn
			340					345					350		
Gly	Ala	Trp	Arg	Ser	Leu	Asn	Leu	Asp	Leu	Asp	Lys	Phe	Glu	Ala	Leu
		355					360					365			
Arg	Lys	Asp	Pro	Lys	Leu	Gly	Phe	Glu	Lys	Leu	Leu	Val	Ser	Val	Phe
	370					375					380				
Ala	Ser	Pro	Ala	Lys	Lys	Gly	Asp	Ala	Lys	Val	Gly	Tyr	Ser	Thr	Ala
385					390					395					400
Thr	Gly	Arg	Asp	Ile	Gly	Ala	Trp	His	Val	Glu	Gly	Arg	Asp	Phe	Ala
				405					410					415	
Lys	Ala	Phe	Thr	Pro	His	Arg	Thr	Leu	Phe	Val	Asp	Ile	Glu	Ile	Pro
			420					425					430		
Arg	Ile	Val	Asp	Asp	Ala	Val	Phe	Arg	Phe	Arg	Glu				
		435					440								

<210> 41
 <211> 1419
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 41

atgacgctcc	gatcaacgga	ctatgcgctg	ctggcgcgagg	agagctacca	cgacagccag	60
gtggacgccg	acgtcaagct	ggatggcgctg	gcgtataaag	tcttcgccac	caccagcgac	120
gggctcaccg	gattccaggc	cacggcctac	cagcgccagg	acaccggcga	ggtagtgatt	180
gcgtaccgcg	gcacggagtt	tgatcgcgag	cccgtccgcg	acggcgggcg	cgatgcgggc	240
atgggtgctgc	tcgggtgtcaa	cgcacaggca	ccagcgctcg	aagtgttcac	ccggcaagtgc	300
atcgagaagg	cgaaacacga	agccgagctc	aacgaccgcg	aaccgcagat	caccgtcacc	360
ggccattccc	tcggcgggcac	cctcgccgag	atcaacgccg	cgaagtacgg	cctccatggc	420
gaaaccttca	acgcctacgg	cgcagccagc	ctcaagggtg	ttccggaggg	cggcgatacc	480
gtcatcgacc	acgtccgtgc	cggcgatctc	gtcagcgcg	ccagccccc	ctacgggcag	540
gtacgcgtct	acgcggcgca	gcaggacatc	gatacgctgc	aacacgccgg	ttaccgcgat	600
gacagcgcca	tcctcagctt	gcgcaaccgc	atcaaggcca	cggatttcga	tgcccatgcc	660
atcgataact	tcgtgccc	cagcaagctg	ctcggtcagt	cgatcatcgc	gccggaaaac	720
gtggcgcggt	acgatgccc	caaaggcatg	gtcgaccgtt	accgcgatga	cgtggccgat	780
atccgcgaagg	gcattctcgg	gccctgggaa	atccccaagg	ccatcggcga	gctgaaggac	840
accctggagc	acgaagcctt	cgaactcgcc	ggcaagggca	ttctcgcggt	ggagcacggc	900
ttcgaacatc	tcaaggagga	gatcggcgaa	ggcatccacg	ccgtggagga	gaaagcttcc	960
agcgcgtggc	ataccctcac	ccatcccaag	gaatgggttcg	agcacgataa	acccaagggtg	1020
accctggacc	acccggacca	ccccgaccat	gcctgttca	agcaggcgca	gggcgcgggtg	1080
cacacagtgc	atgcctcgca	cggccgcacc	cctgacaaga	ccagcgacca	gacgcggcg	1140
tcgctgggtg	tatcggcacg	ccgtgacggc	cttgagcggg	tagaccgcgc	tgtactcagc	1200
gatgacgcca	accgcctgta	cgggtgtgcg	gggtgcgggtg	actcgccgct	gaagcaggtc	1260
accgaagtga	acaccgccac	cgccgcgcag	acatcgctcc	agcagagcag	cgtggcctgg	1320
cagcaacagg	cagaaatcgc	gcgtcagaac	caggcgga	gccaggctca	gcgcattggac	1380
cagcaggtgc	cgccgcaggc	acccgcgcac	ggcatgtaa			1419

<210> 42
 <211> 472
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 42

Met	Thr	Leu	Arg	Ser	Thr	Asp	Tyr	Ala	Leu	Leu	Ala	Gln	Glu	Ser	Tyr
1				5					10					15	
His	Asp	Ser	Gln	Val	Asp	Ala	Asp	Val	Lys	Leu	Asp	Gly	Val	Ala	Tyr
			20					25					30		

Lys	Val	Phe	Ala	Thr	Thr	Ser	Asp	Gly	Leu	Thr	Gly	Phe	Gln	Ala	Thr
		35					40					45			
Ala	Tyr	Gln	Arg	Gln	Asp	Thr	Gly	Glu	Val	Val	Ile	Ala	Tyr	Arg	Gly
	50					55					60				
Thr	Glu	Phe	Asp	Arg	Glu	Pro	Val	Arg	Asp	Gly	Gly	Val	Asp	Ala	Gly
65					70					75					80
Met	Val	Leu	Leu	Gly	Val	Asn	Ala	Gln	Ala	Pro	Ala	Ser	Glu	Val	Phe
				85					90					95	
Thr	Arg	Gln	Val	Ile	Glu	Lys	Ala	Lys	His	Glu	Ala	Glu	Leu	Asn	Asp
			100					105					110		
Arg	Glu	Pro	Gln	Ile	Thr	Val	Thr	Gly	His	Ser	Leu	Gly	Gly	Thr	Leu
		115					120					125			
Ala	Glu	Ile	Asn	Ala	Ala	Lys	Tyr	Gly	Leu	His	Gly	Glu	Thr	Phe	Asn
	130					135					140				
Ala	Tyr	Gly	Ala	Ala	Ser	Leu	Lys	Gly	Ile	Pro	Glu	Gly	Gly	Asp	Thr
145					150					155					160
Val	Ile	Asp	His	Val	Arg	Ala	Gly	Asp	Leu	Val	Ser	Ala	Ala	Ser	Pro
				165					170					175	
His	Tyr	Gly	Gln	Val	Arg	Val	Tyr	Ala	Ala	Gln	Gln	Asp	Ile	Asp	Thr
			180					185					190		
Leu	Gln	His	Ala	Gly	Tyr	Arg	Asp	Asp	Ser	Gly	Ile	Leu	Ser	Leu	Arg
		195					200					205			
Asn	Pro	Ile	Lys	Ala	Thr	Asp	Phe	Asp	Ala	His	Ala	Ile	Asp	Asn	Phe
	210					215					220				
Val	Pro	Asn	Ser	Lys	Leu	Gly	Gln	Ser	Ile	Ile	Ala	Pro	Glu	Asn	
225				230					235					240	
Val	Ala	Arg	Tyr	Asp	Ala	His	Lys	Gly	Met	Val	Asp	Arg	Tyr	Arg	Asp
			245						250					255	
Asp	Val	Ala	Asp	Ile	Arg	Lys	Gly	Ile	Ser	Ala	Pro	Trp	Glu	Ile	Pro
		260						265					270		
Lys	Ala	Ile	Gly	Glu	Leu	Lys	Asp	Thr	Leu	Glu	His	Glu	Ala	Phe	Glu
		275					280					285			
Leu	Ala	Gly	Lys	Gly	Ile	Leu	Ala	Val	Glu	His	Gly	Phe	Glu	His	Leu
	290					295					300				
Lys	Glu	Glu	Ile	Gly	Glu	Gly	Ile	His	Ala	Val	Glu	Glu	Lys	Ala	Ser
305					310					315					320
Ser	Ala	Trp	His	Thr	Leu	Thr	His	Pro	Lys	Glu	Trp	Phe	Glu	His	Asp
			325						330					335	
Lys	Pro	Lys	Val	Thr	Leu	Asp	His	Pro	Asp	His	Pro	Asp	His	Ala	Leu
			340					345					350		
Phe	Lys	Gln	Ala	Gln	Gly	Ala	Val	His	Thr	Val	Asp	Ala	Ser	His	Gly
		355					360					365			
Arg	Thr	Pro	Asp	Lys	Thr	Ser	Asp	Gln	Ile	Ala	Gly	Ser	Leu	Val	Val
	370					375					380				
Ser	Ala	Arg	Arg	Asp	Gly	Leu	Glu	Arg	Val	Asp	Arg	Ala	Val	Leu	Ser
385					390					395					400
Asp	Asp	Ala	Asn	Arg	Leu	Tyr	Gly	Val	Gln	Gly	Ala	Val	Asp	Ser	Pro
			405						410					415	
Leu	Lys	Gln	Val	Thr	Glu	Val	Asn	Thr	Ala	Thr	Ala	Ala	Gln	Thr	Ser
			420					425					430		
Leu	Gln	Gln	Ser	Ser	Val	Ala	Trp	Gln	Gln	Gln	Ala	Glu	Ile	Ala	Arg
		435					440					445			
Gln	Asn	Gln	Ala	Ala	Ser	Gln	Ala	Gln	Arg	Met	Asp	Gln	Gln	Val	Pro
	450					455					460				
Pro	Gln	Ala	Pro	Ala	His	Gly	Met								
465					470										

<210> 43
 <211> 1287
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

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<400> 43
atgtcgtatta ccgtttaccg gaagccctcc ggcggtttg gagcgatagt tcctcaagcg      60
aaaattgaga accttgtttt cgagggcggc ggaccaaagg gcctggtcta tgtcggcgcg      120
gtcgtggttc tcggtgaaag gggactgctg gaagggatcg caaatgtcgg cggcgcttca      180
gcaggcgcca tgaccgctct agccgtcggt ctgggactga gccccaggga aattcgcgcg      240
gtcgtcttta accagaacat tgcggacctc accgatatcg agaagaccgt cgagccgtcc      300
tccgggatca caggcatgtt caagagcgtg ttcaagaagg gttggcaggc ggtgcgcaac      360
gtaaccggca cctctgacga gcgcgggccc gggctctatc gcggcgagaa gttgcgagcc      420
tggtatcagag acctgattgc acagcgagtc gaggcagggc gctcagaggt gctgagccga      480
gccgacgccc acgggcgga cttctatgag aaagccgccc caaagaaggg cgccctgaca      540
tttgccgaac ttgatcgggt ggcgcaaatt gcgcggggcc tgcggcttcg ccgcctggcc      600
ttcaccggaa ccaacttcac gtcgaagaag ctcgaagtgt tcagtctgca cgagaccccg      660
gacatgccga tcgacgtcgc ggtacgcata tcggcatcgt tgccatggtt tttcaaattc      720
gtgaaatgga acggtccga atacatagat ggcggtatgcc tgtcgaactt cccaatgccg      780
atattcgacg tcgatcccta tcgtggcgac gcatcgctga agatccggct cggcatcttc      840
ggccagaacc tcgcgacgct cggcttcaag gtcgacagcg aggaggagat ccgcgacatc      900
ctctggcgta gccccgagag cagcagcgac ggctttttcc aaggcatcct gtcaagcgtg      960
aaagcctcgg cagaacactg ggtcgtcggc atcgatgtcg agggcgccac ccgcgcgtcg      1020
aacgtggccg ttcacggcaa gtatgctcag cgaacgatcc agataccgga cctcggatat      1080
agcacgttca agttcgatct ctcagacgcg gacaaggagc gcatggccga ggccggcgca      1140
aaggccacgc gggaatggct ggcgctgtac ttcgacgacg ccggaataga ggtcgaattt      1200
tctgatccga acgaattgcg cggccagtgt tccgacgccg cattcgcaga cctcagaggat      1260
tcgtttcgag ccttgatcgc ggcctag                                     1287

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<210> 44
<211> 428
<212> PRT
<213> Unknown

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<220>
<223> Obtained from an environmental sample.

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<400> 44
Met Ser Ile Thr Val Tyr Arg Lys Pro Ser Gly Gly Phe Gly Ala Ile
 1           5           10           15
Val Pro Gln Ala Lys Ile Glu Asn Leu Val Phe Glu Gly Gly Gly Pro
 20           25           30
Lys Gly Leu Val Tyr Val Gly Ala Val Glu Val Leu Gly Glu Arg Gly
 35           40           45
Leu Leu Glu Gly Ile Ala Asn Val Gly Gly Ala Ser Ala Gly Ala Met
 50           55           60
Thr Ala Leu Ala Val Gly Leu Gly Leu Ser Pro Arg Glu Ile Arg Ala
 65           70           75           80
Val Val Phe Asn Gln Asn Ile Ala Asp Leu Thr Asp Ile Glu Lys Thr
 85           90           95
Val Glu Pro Ser Ser Gly Ile Thr Gly Met Phe Lys Ser Val Phe Lys
100           105           110
Lys Gly Trp Gln Ala Val Arg Asn Val Thr Gly Thr Ser Asp Glu Arg
115           120           125
Gly Arg Gly Leu Tyr Arg Gly Glu Lys Leu Arg Ala Trp Ile Arg Asp
130           135           140
Leu Ile Ala Gln Arg Val Glu Ala Gly Arg Ser Glu Val Leu Ser Arg
145           150           155           160
Ala Asp Ala Asp Gly Arg Asn Phe Tyr Glu Lys Ala Ala Ala Lys Lys
165           170           175
Gly Ala Leu Thr Phe Ala Glu Leu Asp Arg Val Ala Gln Met Ala Pro
180           185           190
Gly Leu Arg Leu Arg Arg Leu Ala Phe Thr Gly Thr Asn Phe Thr Ser
195           200           205
Lys Lys Leu Glu Val Phe Ser Leu His Glu Thr Pro Asp Met Pro Ile
210           215           220
Asp Val Ala Val Arg Ile Ser Ala Ser Leu Pro Trp Phe Phe Lys Ser
225           230           235           240

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Val	Lys	Trp	Asn	Gly	Ser	Glu	Tyr	Ile	Asp	Gly	Gly	Cys	Leu	Ser	Asn	
				245					250					255		
Phe	Pro	Met	Pro	Ile	Phe	Asp	Val	Asp	Pro	Tyr	Arg	Gly	Asp	Ala	Ser	
			260					265					270			
Ser	Lys	Ile	Arg	Leu	Gly	Ile	Phe	Gly	Gln	Asn	Leu	Ala	Thr	Leu	Gly	
		275					280					285				
Phe	Lys	Val	Asp	Ser	Glu	Glu	Ile	Arg	Asp	Ile	Leu	Trp	Arg	Ser		
	290				295					300						
Pro	Glu	Ser	Thr	Ser	Asp	Gly	Phe	Phe	Gln	Gly	Ile	Leu	Ser	Ser	Val	
305					310					315					320	
Lys	Ala	Ser	Ala	Glu	His	Trp	Val	Val	Gly	Ile	Asp	Val	Glu	Gly	Ala	
			325						330					335		
Thr	Arg	Ala	Ser	Asn	Val	Ala	Val	His	Gly	Lys	Tyr	Ala	Gln	Arg	Thr	
		340						345					350			
Ile	Gln	Ile	Pro	Asp	Leu	Gly	Tyr	Ser	Thr	Phe	Lys	Phe	Asp	Leu	Ser	
	355					360						365				
Asp	Ala	Asp	Lys	Glu	Arg	Met	Ala	Glu	Ala	Gly	Ala	Lys	Ala	Thr	Arg	
	370				375						380					
Glu	Trp	Leu	Ala	Leu	Tyr	Phe	Asp	Asp	Ala	Gly	Ile	Glu	Val	Glu	Phe	
385					390					395					400	
Ser	Asp	Pro	Asn	Glu	Leu	Arg	Gly	Gln	Leu	Ser	Asp	Ala	Ala	Phe	Ala	
			405					410						415		
Asp	Leu	Glu	Asp	Ser	Phe	Arg	Ala	Leu	Ile	Ala	Ala					
		420						425								

<210> 45
 <211> 1038
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 45

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attggcgcca	tgcagattct	cgaaaatcgt	ggcgtgttgc	aagatattca	ccgagtcgga	120
gggtgcagtg	cggttgcgat	taatgcgctg	atttttgcgc	tgggttacac	ggttcgtgag	180
caaaaagaga	tcttacaagc	caccgatttt	aaccagttta	tggataactc	ttgggggtgtt	240
attcgtgata	ttcgcaggct	tgctcgagac	tttggctgga	ataagggtga	tttctttagt	300
agctggatag	gtgatttgat	tcatcgtcgt	ttggggaatc	gccgagcgac	gttcaaagat	360
ctgcaaaatg	ccaagcttcc	tgatctttat	gtcatcggtg	ctaactctgtc	tacagggttt	420
gcagagggtt	tttctgccga	aagacacccc	gatatggagc	tggcgacagc	ggtgcgtatc	480
tccatgtcga	taccgctgtt	ctttgcagcc	gtgcgtcacg	gtgatcgaca	agatgtgtat	540
gtcgaatggg	gtgttcaact	taactatccg	attaaactgt	ttgatcgga	gcgttacatt	600
gatctggcca	aagatcccgg	tgctgttcgg	cgaacgggtt	attacaacaa	agaaaacgct	660
cgctttcagc	ttgagcggcc	cggtcatagc	ccctatgttt	acaatcgcca	gaccttgggt	720
ttgcgtcttg	atagtcgcga	gcagataggg	ctctttcgtt	atgacgaacc	cctcaagggc	780
aaacccatta	agtccttcac	tgactacgct	cgacaacttt	tgggtgcgtt	gatgaatgca	840
caggaaaaga	ttcatctaca	tggcgatgat	tggcaacgca	cggtctatat	cgatacattg	900
gatgtgggta	cgacggactt	caatctttct	gatgcaacta	agcaagcact	gattgagcaa	960
ggaattaacg	gcaccgaaaa	ttatttcgag	tggtttgata	atccgtaga	gaagcccgtg	1020
aatagagtgg	agtcatag					1038

<210> 46
 <211> 345
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 46

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1				5					10					15		

Gly	Val	Ala	Tyr	Ile	Gly	Ala	Met	Gln	Ile	Leu	Glu	Asn	Arg	Gly	Val
		20						25					30		
Leu	Gln	Asp	Ile	His	Arg	Val	Gly	Gly	Cys	Ser	Ala	Gly	Ala	Ile	Asn
		35					40					45			
Ala	Leu	Ile	Phe	Ala	Leu	Gly	Tyr	Thr	Val	Arg	Glu	Gln	Lys	Glu	Ile
	50				55						60				
Leu	Gln	Ala	Thr	Asp	Phe	Asn	Gln	Phe	Met	Asp	Asn	Ser	Trp	Gly	Val
65					70				75					80	
Ile	Arg	Asp	Ile	Arg	Arg	Leu	Ala	Arg	Asp	Phe	Gly	Trp	Asn	Lys	Gly
			85						90					95	
Asp	Phe	Phe	Ser	Ser	Trp	Ile	Gly	Asp	Leu	Ile	His	Arg	Arg	Leu	Gly
			100					105					110		
Asn	Arg	Arg	Ala	Thr	Phe	Lys	Asp	Leu	Gln	Asn	Ala	Lys	Leu	Pro	Asp
		115					120					125			
Leu	Tyr	Val	Ile	Gly	Thr	Asn	Leu	Ser	Thr	Gly	Phe	Ala	Glu	Val	Phe
	130					135					140				
Ser	Ala	Glu	Arg	His	Pro	Asp	Met	Glu	Leu	Ala	Thr	Ala	Val	Arg	Ile
145					150				155					160	
Ser	Met	Ser	Ile	Pro	Leu	Phe	Phe	Ala	Ala	Val	Arg	His	Gly	Asp	Arg
			165					170					175		
Gln	Asp	Val	Tyr	Val	Asp	Gly	Gly	Val	Gln	Leu	Asn	Tyr	Pro	Ile	Lys
		180						185					190		
Leu	Phe	Asp	Arg	Glu	Arg	Tyr	Ile	Asp	Leu	Ala	Lys	Asp	Pro	Gly	Ala
	195						200				205				
Val	Arg	Arg	Thr	Gly	Tyr	Tyr	Asn	Lys	Glu	Asn	Ala	Arg	Phe	Gln	Leu
	210					215					220				
Glu	Arg	Pro	Gly	His	Ser	Pro	Tyr	Val	Tyr	Asn	Arg	Gln	Thr	Leu	Gly
225					230				235					240	
Leu	Arg	Leu	Asp	Ser	Arg	Glu	Gln	Ile	Gly	Leu	Phe	Arg	Tyr	Asp	Glu
			245						250					255	
Pro	Leu	Lys	Gly	Lys	Pro	Ile	Lys	Ser	Phe	Thr	Asp	Tyr	Ala	Arg	Gln
		260						265					270		
Leu	Phe	Gly	Ala	Leu	Met	Asn	Ala	Gln	Glu	Lys	Ile	His	Leu	His	Gly
	275					280						285			
Asp	Asp	Trp	Gln	Arg	Thr	Val	Tyr	Ile	Asp	Thr	Leu	Asp	Val	Gly	Thr
	290					295					300				
Thr	Asp	Phe	Asn	Leu	Ser	Asp	Ala	Thr	Lys	Gln	Ala	Leu	Ile	Glu	Gln
305					310				315					320	
Gly	Ile	Asn	Gly	Thr	Glu	Asn	Tyr	Phe	Glu	Trp	Phe	Asp	Asn	Pro	Leu
			325						330					335	
Glu	Lys	Pro	Val	Asn	Arg	Val	Glu	Ser							
		340						345							

<210> 47
 <211> 1476
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 47	
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gaaattttcc tgggccgtta tatcagcttt aatgataaca ttacattaga tgacgtttcg	180
cgggctttta atacggccat tagcgaacag ttagacaata cagacagggt tatatgtatt	240
acacattcta ccggagggcc ggttattcgc gaatgggttaa ataaatacta ttataatgaa	300
cgtccaccac taagtcattt aataatgctt gcaccggcca attttggttc ggcattggct	360
cgtttaggga aaagtaaatt aagccgtatt aaaagttggt ttgaaggtgt agaaccaggg	420
cagaaaattt tagactggct ggagtgtgga agcaaccaat cgtgggttact aaataaagac	480
tgatcgaca atggcaattt tcagattggc gctgataagt atttcccgtt tgttatcatt	540
ggccagtcga ttgatcgtaa actttacgat catcttaact catataccgg cgagcttggg	600
tccgatggtg tagttcgcac ctcaggagct aatcttaatt cgcggtatat taagcttgtt	660
caggacagaa atacaatagc taatggaaat atttccagta cattacgaat tgccgaatat	720

agagaagctt	gtgcaacgcc	catacgggta	gtagagagta	aatcgcatte	gggcgatgaa	780
atgggtatca	tgaagaagtg	taaaaaagaa	attactgatg	ccggaagcaa	ggaaacaata	840
aatgccatat	tcgagtgtat	tgaagttaca	aacaacgaac	aatatcaatc	cttaattact	900
aaatttgata	acgaaacagc	acaggtacaa	aaggatgagc	tgattgaaac	ggaaacagaa	960
ttatttttaa	tgcaccgtca	tttcattcac	gaccgctttt	cgcaattcat	ttttaaagta	1020
actgactcag	aagggaaccc	tgttacagat	tatgatttaa	tttttacagc	cggggccacaa	1080
aacgatgcga	accacttacc	ggaaggattt	gccattgaca	ggcaacaaaa	ttcaaataat	1140
aacgaaacca	ttacgtatta	ttttaattac	gatgtattga	aaggggctcc	cgcaaagtgt	1200
taccgggacg	cattaccagg	tatttctatg	ctggggctaa	ccataaacc	aaggccggac	1260
gaagggtttg	taagatatat	cccatgcagc	attaaagcca	attccgagtt	gatggaaaaa	1320
gccttttaaac	caaattctac	taccttggtc	gatattgtta	ttcaacgtgt	agttagcaaa	1380
gaagtttttc	ggttgaaaaa	gttaactgg	agctcaatgc	caacagacaa	agatgggaat	1440
tttaaaaata	ctgaacctgg	taacgaaata	atatga			1476

<210> 48
 <211> 491
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 48

Met	Ser	Thr	Lys	Val	Val	Phe	Val	His	Gly	Trp	Ser	Val	Thr	Asn	Leu
1				5					10					15	
Asn	Thr	Tyr	Gly	Glu	Leu	Pro	Leu	Arg	Leu	Lys	Ala	Glu	Ala	Ile	Ser
			20					25					30		
Arg	Asn	Leu	Asn	Ile	Glu	Val	Asn	Glu	Ile	Phe	Leu	Gly	Arg	Tyr	Ile
		35					40					45			
Ser	Phe	Asn	Asp	Asn	Ile	Thr	Leu	Asp	Asp	Val	Ser	Arg	Ala	Phe	Asn
	50					55					60				
Thr	Ala	Ile	Ser	Glu	Gln	Leu	Asp	Asn	Thr	Asp	Arg	Phe	Ile	Cys	Ile
65					70					75				80	
Thr	His	Ser	Thr	Gly	Gly	Pro	Val	Ile	Arg	Glu	Trp	Leu	Asn	Lys	Tyr
				85					90					95	
Tyr	Tyr	Asn	Glu	Arg	Pro	Pro	Leu	Ser	His	Leu	Ile	Met	Leu	Ala	Pro
			100					105					110		
Ala	Asn	Phe	Gly	Ser	Ala	Leu	Ala	Arg	Leu	Gly	Lys	Ser	Lys	Leu	Ser
		115					120					125			
Arg	Ile	Lys	Ser	Trp	Phe	Glu	Gly	Val	Glu	Pro	Gly	Gln	Lys	Ile	Leu
	130					135					140				
Asp	Trp	Leu	Glu	Cys	Gly	Ser	Asn	Gln	Ser	Trp	Leu	Leu	Asn	Lys	Asp
145					150					155					160
Trp	Ile	Asp	Asn	Gly	Asn	Phe	Gln	Ile	Gly	Ala	Asp	Lys	Tyr	Phe	Pro
			165						170					175	
Phe	Val	Ile	Ile	Gly	Gln	Ser	Ile	Asp	Arg	Lys	Leu	Tyr	Asp	His	Leu
			180					185					190		
Asn	Ser	Tyr	Thr	Gly	Glu	Leu	Gly	Ser	Asp	Gly	Val	Val	Arg	Thr	Ser
		195					200					205			
Gly	Ala	Asn	Leu	Asn	Ser	Arg	Tyr	Ile	Lys	Leu	Val	Gln	Asp	Arg	Asn
	210					215					220				
Thr	Ile	Ala	Asn	Gly	Asn	Ile	Ser	Ser	Thr	Leu	Arg	Ile	Ala	Glu	Tyr
225					230					235					240
Arg	Glu	Ala	Cys	Ala	Thr	Pro	Ile	Arg	Val	Val	Arg	Gly	Lys	Ser	His
			245						250					255	
Ser	Gly	Asp	Glu	Met	Gly	Ile	Met	Lys	Ser	Val	Lys	Lys	Glu	Ile	Thr
			260					265					270		
Asp	Ala	Gly	Ser	Lys	Glu	Thr	Ile	Asn	Ala	Ile	Phe	Glu	Cys	Ile	Glu
		275					280					285			
Val	Thr	Asn	Asn	Glu	Gln	Tyr	Gln	Ser	Leu	Ile	Thr	Lys	Phe	Asp	Asn
	290					295						300			
Glu	Thr	Ala	Gln	Val	Gln	Lys	Asp	Glu	Leu	Ile	Glu	Thr	Glu	Thr	Glu
305					310					315					320
Leu	Phe	Leu	Met	His	Arg	His	Phe	Ile	His	Asp	Arg	Phe	Ser	Gln	Phe

<400> 50

Met	Asn	Phe	Trp	Ser	Phe	Leu	Leu	Ser	Ile	Thr	Leu	Pro	Met	Gly	Val
1				5					10					15	
Gly	Val	Ala	His	Ala	Gln	Pro	Asp	Thr	Asp	Phe	Gln	Ser	Ala	Glu	Pro
			20					25					30		
Tyr	Val	Ser	Ser	Ala	Pro	Met	Gly	Arg	Gln	Thr	Tyr	Thr	Tyr	Val	Arg
		35					40					45			
Cys	Trp	Tyr	Arg	Thr	Ser	His	Ser	Thr	Asp	Asp	Pro	Ala	Thr	Asp	Trp
	50					55					60				
Gln	Trp	Ala	Arg	Asn	Ser	Asp	Gly	Ser	Tyr	Phe	Thr	Leu	Gln	Gly	Tyr
65				70						75					80
Trp	Trp	Ser	Ser	Val	Arg	Leu	Lys	Asn	Met	Phe	Tyr	Thr	Gln	Thr	Ser
				85					90					95	
Gln	Asn	Val	Ile	Arg	Gln	Arg	Cys	Glu	His	Thr	Leu	Ser	Ile	Asn	His
		100						105					110		
Asp	Asn	Ala	Asp	Ile	Thr	Phe	Tyr	Ala	Ala	Asp	Asn	Arg	Phe	Ser	Leu
		115						120				125			
Asn	His	Thr	Ile	Trp	Ser	Asn	Asp	Pro	Val	Met	Gln	Ala	Asn	Gln	Ile
	130					135					140				
Asn	Lys	Ile	Val	Ala	Phe	Gly	Asp	Ser	Leu	Ser	Asp	Thr	Gly	Asn	Ile
145				150						155					160
Phe	Asn	Ala	Ala	Gln	Trp	Arg	Phe	Pro	Asn	Pro	Asn	Ser	Trp	Phe	Leu
				165				170						175	
Gly	His	Phe	Ser	Asn	Gly	Leu	Val	Trp	Thr	Glu	Tyr	Leu	Ala	Lys	Gln
			180					185					190		
Lys	Asn	Leu	Pro	Ile	Tyr	Asn	Trp	Ala	Val	Gly	Gly	Ala	Ala	Gly	Ala
	195						200					205			
Asn	Gln	Tyr	Val	Ala	Leu	Thr	Gly	Val	Thr	Gly	Gln	Val	Asn	Ser	Tyr
	210					215					220				
Leu	Gln	Tyr	Met	Gly	Lys	Ala	Gln	Asn	Tyr	Arg	Pro	Gln	Asn	Thr	Leu
225				230						235					240
Tyr	Thr	Leu	Val	Phe	Gly	Leu	Asn	Asp	Phe	Met	Asn	Tyr	Asn	Arg	Glu
				245					250					255	
Val	Ala	Glu	Val	Ala	Ala	Asp	Phe	Glu	Thr	Ala	Leu	Gln	Arg	Leu	Thr
			260					265					270		
Gln	Ala	Gly	Ala	Gln	Asn	Ile	Leu	Met	Met	Thr	Leu	Pro	Asp	Val	Thr
		275					280					285			
Lys	Ala	Pro	Gln	Phe	Thr	Tyr	Ser	Thr	Gln	Ala	Glu	Ile	Asp	Leu	Ile
	290					295					300				
Gln	Gly	Lys	Ile	Asn	Ala	Leu	Asn	Ile	Lys	Leu	Lys	Gln	Leu	Thr	Ala
305				310						315					320
Gln	Tyr	Ile	Leu	Gln	Gly	Tyr	Ala	Ile	His	Leu	Phe	Asp	Thr	Tyr	Glu
				325					330					335	
Leu	Phe	Asp	Ser	Met	Val	Ala	Glu	Pro	Glu	Lys	His	Gly	Phe	Ala	Asn
			340					345					350		
Ala	Ser	Glu	Pro	Cys	Leu	Asn	Leu	Thr	Arg	Ser	Ser	Ala	Ala	Asp	Tyr
		355					360					365			
Leu	Tyr	Arg	His	Pro	Ile	Thr	Asn	Thr	Cys	Ala	Arg	Tyr	Gly	Ala	Asp
	370					375					380				
Lys	Phe	Val	Phe	Trp	Asp	Val	Thr	His	Pro	Thr	Thr	Ala	Thr	His	Arg
385					390					395					400
Tyr	Ile	Ser	Gln	Thr	Leu	Leu	Ala	Pro	Gly	Asn	Gly	Leu	Gln	Tyr	Phe
				405					410					415	

Asn Phe

<210> 51

<211> 1482

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

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<400> 51
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ccgctcacgg gggtccaggc caccgcgtac cagcgccagg acaccggcga agtcgtcatc      180
gcctatcgtg gtacggaatt cgaccgcgag cccgttcgcg acggcggcgt cgatgccggc      240
atggtgctgc tgggggtgaa tgcccagtcg cctgcctccg agctatttac ccgcgaagtg      300
atcgagaagg cgacgcacga agccgaactc aatgaccgcg agccccggat caccgtgact      360
ggccactccc tcggcggcac cctcgccgaa atcaacgcgg ccaagtacgg cctgcacggc      420
gaaaccttca acgcatacgg tgcggccagc ctcaagggca tcccgggaagg cggcaatacc      480
gtgatcgacc acgtgcgcgc tggcgacctc gtcagcgccg ccagcccgca ttacggggcag      540
gtgcgcgtct acgcggccca gcaggatata gacaccttgc agcatgccgg ctaccgcgac      600
gacagcggca tccttagcct gcgcaacccg atcaaggcca cggatttcga cgcgcacgcc      660
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gaagcccgtt acgaagccca caagggcatg gtcgaccgct accgcgatga cgtggctgac      780
atccgcatgc tcgtctccgc tcccctgaac atcccgcgca ccatcggcga tatcaaggat      840
gccgtggaac gcgaggcatt tgagctggct ggcaagggca tcctcgccgt tgaacacggc      900
atcgaagagg tcgtgcacga ggcaaaggaa ggcttcgagc acctcaagga aggccttgag      960
cacctgaagg aagaagtcag cgagggcttc catgccttcg aggaaaaggc ctccagcgcg     1020
tggcatacgc tgacctatcc caaggaatgg ttcgagcagc acaagccgca ggtcgccctg     1080
aaccacccac agcaccgcga caacgaactg ttcaagaagg tgctcgaagg cgtgcaccag     1140
gttgatgcga agcagggtcg ttcacccgac cagctcagtg agaacctggc cgcatcgctt     1200
accgttgccg cagcgaagga aggcctggac aaggtcaacc acgtgctgct cgacgacccc     1260
ggcattcgca cctacgccgt gcaggggtgag ctcaactcgc cgttgaagca ggtctccagt     1320
gtcgataacg cccaggcggt cgccacaccg gtggcccaga gcagcgcgca atggcgacag     1380
gctgccgagg cgcggcaggc acagcacaat gaggcgcttg cgcagcagca ggcgcaacag     1440
cagcagaaca accggcccaa ccatgggggtt gccggcccgct ga                        1482

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<210> 52
<211> 493
<212> PRT
<213> Unknown

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<220>
<223> Obtained from an environmental sample.

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<400> 52
Met Thr Ile Arg Ser Thr Asp Tyr Ala Leu Leu Ala Gln Glu Ser Tyr
 1           5           10           15
His Asp Ser Gln Val Asp Ala Asp Val Lys Leu Asp Gly Ile Ala Tyr
 20           25           30
Lys Val Phe Ala Thr Thr Asp Asp Pro Leu Thr Gly Phe Gln Ala Thr
 35           40           45
Ala Tyr Gln Arg Gln Asp Thr Gly Glu Val Val Ile Ala Tyr Arg Gly
 50           55           60
Thr Glu Phe Asp Arg Glu Pro Val Arg Asp Gly Gly Val Asp Ala Gly
 65           70           75           80
Met Val Leu Leu Gly Val Asn Ala Gln Ser Pro Ala Ser Glu Leu Phe
 85           90           95
Thr Arg Glu Val Ile Glu Lys Ala Thr His Glu Ala Glu Leu Asn Asp
100           105           110
Arg Glu Pro Arg Ile Thr Val Thr Gly His Ser Leu Gly Gly Thr Leu
115           120           125
Ala Glu Ile Asn Ala Ala Lys Tyr Gly Leu His Gly Glu Thr Phe Asn
130           135           140
Ala Tyr Gly Ala Ala Ser Leu Lys Gly Ile Pro Glu Gly Gly Asn Thr
145           150           155           160
Val Ile Asp His Val Arg Ala Gly Asp Leu Val Ser Ala Ala Ser Pro
165           170           175
His Tyr Gly Gln Val Arg Val Tyr Ala Ala Gln Gln Asp Ile Asp Thr
180           185           190
Leu Gln His Ala Gly Tyr Arg Asp Asp Ser Gly Ile Leu Ser Leu Arg
195           200           205
Asn Pro Ile Lys Ala Thr Asp Phe Asp Ala His Ala Ile Asp Asn Phe
210           215           220

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Val	Pro	Asn	Ser	Lys	Leu	Leu	Gly	Gln	Ser	Ile	Ile	Ala	Pro	Glu	Asn		
225					230					235					240		
Glu	Ala	Arg	Tyr	Glu	Ala	His	Lys	Gly	Met	Val	Asp	Arg	Tyr	Arg	Asp		
				245					250						255		
Asp	Val	Ala	Asp	Ile	Arg	Met	Leu	Val	Ser	Ala	Pro	Leu	Asn	Ile	Pro		
			260					265					270				
Arg	Thr	Ile	Gly	Asp	Ile	Lys	Asp	Ala	Val	Glu	Arg	Glu	Ala	Phe	Glu		
		275					280					285					
Leu	Ala	Gly	Lys	Gly	Ile	Leu	Ala	Val	Glu	His	Gly	Ile	Glu	Glu	Val		
	290					295					300						
Val	His	Glu	Ala	Lys	Glu	Gly	Phe	Glu	His	Leu	Lys	Glu	Gly	Phe	Glu		
305					310					315					320		
His	Leu	Lys	Glu	Glu	Val	Ser	Glu	Gly	Phe	His	Ala	Phe	Glu	Glu	Lys		
			325					330							335		
Ala	Ser	Ser	Ala	Trp	His	Thr	Leu	Thr	His	Pro	Lys	Glu	Trp	Phe	Glu		
			340					345					350				
His	Asp	Lys	Pro	Gln	Val	Ala	Leu	Asn	His	Pro	Gln	His	Pro	Asp	Asn		
		355					360					365					
Glu	Leu	Phe	Lys	Lys	Val	Leu	Glu	Gly	Val	His	Gln	Val	Asp	Ala	Lys		
	370					375					380						
Gln	Gly	Arg	Ser	Pro	Asp	Gln	Leu	Ser	Glu	Asn	Leu	Ala	Ala	Ser	Leu		
385					390					395					400		
Thr	Val	Ala	Ala	Arg	Lys	Glu	Gly	Leu	Asp	Lys	Val	Asn	His	Val	Leu		
			405						410						415		
Leu	Asp	Asp	Pro	Gly	Ile	Arg	Thr	Tyr	Ala	Val	Gln	Gly	Glu	Leu	Asn		
			420					425					430				
Ser	Pro	Leu	Lys	Gln	Val	Ser	Ser	Val	Asp	Asn	Ala	Gln	Ala	Val	Ala		
		435					440					445					
Thr	Pro	Val	Ala	Gln	Ser	Ser	Ala	Gln	Trp	Gln	Gln	Ala	Ala	Glu	Ala		
	450					455					460						
Arg	Gln	Ala	Gln	His	Asn	Glu	Ala	Leu	Ala	Gln	Gln	Gln	Ala	Gln	Gln		
465					470					475						480	
Gln	Gln	Asn	Asn	Arg	Pro	Asn	His	Gly	Val	Ala	Gly	Pro					
			485						490								

<210> 53
 <211> 1491
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 53

atgcgtcagg	ttacattagt	atttgttcat	ggctacagcg	ttacaaacat	cgacacttat	60
ggtgaaatgc	cactcaggct	cgcacacgaa	ggagccacac	gtgatataga	aataaaaatt	120
gagaacattt	tcttggggcg	ctacatcagc	tttaattgatg	atgtgagatt	aaatgatgtt	180
tccagagcat	tggaaacagc	cgtacaacaa	cagattgcac	cgggaaataa	aaacaattcc	240
cgttacgtat	tcatcaccca	ctctaccggc	ggaccggtag	tgagaaactg	gtgggatctg	300
tactataaaa	acagcacgaa	acaatgccct	atgagccacc	tcattatgct	ggctcctgcc	360
aattttggct	cggcactggc	acaactggga	aaaagcaaac	taagccgcat	taaatcctgg	420
ttcgatggtg	tggaaacccg	acagaatgta	ttgaattggc	tggaaactgg	aagcgcggaa	480
gcatggaagc	taaacaccga	ctggattaag	agtgatggaa	gtcagatctc	ggcacagggt	540
atttttcctt	ttgtgatcat	aggtcaggac	attgaccgca	aattatacga	tcattttaaac	600
tcctacaccg	gtgagctggg	ttccgacggc	gtgggtgcgtt	cggccgcagc	caattttaaat	660
gctacttatg	taaaactcac	acaacctaaa	cccaccttgg	taaatggaaa	actggttaaca	720
ggtaatctgg	aaataggaga	agtaaaacaa	gcgccttata	cacccatgcg	catcgtctca	780
aaaaaatcgc	attccaacaa	ggatatggga	attatgagaa	gtgtactgaa	atcaacaaat	840
gatgccaaaca	gcgccgaaac	ggtaaacgcc	atTTTTgtact	gcattaatgt	gaaaacctta	900
accgattacc	agagcattgc	cacacagttt	gattcgcaaa	caaaagacgt	gcaggaaaat	960
tcaattattg	aaagggaaaa	aacgcccttt	ggaactaaaa	actatattca	cgaccgtttc	1020
tcccagggtca	ttttcagagt	aacagacagt	gaaggttacc	cggttaccag	ttttgatctg	1080
atcctcaccg	gcggcgaaaa	aaatgatccc	aacgccttgc	ctcagggtctt	ttttgtggac	1140
agacaatgca	acagtgtcaa	taaatcgacc	attacttatt	ttttaaatca	cgatattatg	1200

aacggcacac	cagctatagc	aggtataaga	ccggcatcca	aaggcatgga	aaaactgggt	1260
ctgatcatta	acccaaggcc	tgaagaaggc	tttgtgctt	acattccctg	caaaataaac	1320
acatgccccg	atttgtttga	cgccgctctg	aaaccaacg	ccacaacgct	tattgatatt	1380
gtattgcaac	gcgtggtaag	taccgaagta	ttccgctttg	aaggaacaga	cggggtaacg	1440
ccgcctaaaa	aagattttctc	gaaagtgaaa	cccggaacgg	atattatttg	a	1491

<210> 54

<211> 496

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 54

Met	Arg	Gln	Val	Thr	Leu	Val	Phe	Val	His	Gly	Tyr	Ser	Val	Thr	Asn	1	5	10	15
Ile	Asp	Thr	Tyr	Gly	Glu	Met	Pro	Leu	Arg	Leu	Arg	Asn	Glu	Gly	Ala	20	25	30	
Thr	Arg	Asp	Ile	Glu	Ile	Lys	Ile	Glu	Asn	Ile	Phe	Leu	Gly	Arg	Tyr	35	40	45	
Ile	Ser	Phe	Asn	Asp	Asp	Val	Arg	Leu	Asn	Asp	Val	Ser	Arg	Ala	Leu	50	55	60	
Glu	Thr	Ala	Val	Gln	Gln	Ile	Ala	Pro	Gly	Asn	Lys	Asn	Asn	Ser		65	70	75	80
Arg	Tyr	Val	Phe	Ile	Thr	His	Ser	Thr	Gly	Gly	Pro	Val	Val	Arg	Asn	85	90	95	
Trp	Trp	Asp	Leu	Tyr	Tyr	Lys	Asn	Ser	Thr	Lys	Gln	Cys	Pro	Met	Ser	100	105	110	
His	Leu	Ile	Met	Leu	Ala	Pro	Ala	Asn	Phe	Gly	Ser	Ala	Leu	Ala	Gln	115	120	125	
Leu	Gly	Lys	Ser	Lys	Leu	Ser	Arg	Ile	Lys	Ser	Trp	Phe	Asp	Gly	Val	130	135	140	
Glu	Pro	Gly	Gln	Asn	Val	Leu	Asn	Trp	Leu	Glu	Leu	Gly	Ser	Ala	Glu	145	150	155	160
Ala	Trp	Lys	Leu	Asn	Thr	Asp	Trp	Ile	Lys	Ser	Asp	Gly	Ser	Gln	Ile	165	170	175	
Ser	Ala	Gln	Gly	Ile	Phe	Pro	Phe	Val	Ile	Ile	Gly	Gln	Asp	Ile	Asp	180	185	190	
Arg	Lys	Leu	Tyr	Asp	His	Leu	Asn	Ser	Tyr	Thr	Gly	Glu	Leu	Gly	Ser	195	200	205	
Asp	Gly	Val	Val	Arg	Ser	Ala	Ala	Asn	Leu	Asn	Ala	Thr	Tyr	Val		210	215	220	
Lys	Leu	Thr	Gln	Pro	Lys	Pro	Thr	Leu	Val	Asn	Gly	Lys	Leu	Val	Thr	225	230	235	240
Gly	Asn	Leu	Glu	Ile	Gly	Glu	Val	Lys	Gln	Ala	Pro	Tyr	Thr	Pro	Met	245	250	255	
Arg	Ile	Val	Ser	Lys	Lys	Ser	His	Ser	Asn	Lys	Asp	Met	Gly	Ile	Met	260	265	270	
Arg	Ser	Val	Leu	Lys	Ser	Thr	Asn	Asp	Ala	Asn	Ser	Ala	Glu	Thr	Val	275	280	285	
Asn	Ala	Ile	Phe	Asp	Cys	Ile	Asn	Val	Lys	Thr	Leu	Thr	Asp	Tyr	Gln	290	295	300	
Ser	Ile	Ala	Thr	Gln	Phe	Asp	Ser	Gln	Thr	Lys	Asp	Val	Gln	Glu	Asn	305	310	315	320
Ser	Ile	Ile	Glu	Arg	Glu	Lys	Thr	Pro	Phe	Gly	Thr	Lys	Asn	Tyr	Ile	325	330	335	
His	Asp	Arg	Phe	Ser	Gln	Val	Ile	Phe	Arg	Val	Thr	Asp	Ser	Glu	Gly	340	345	350	
Tyr	Pro	Val	Thr	Ser	Phe	Asp	Leu	Ile	Leu	Thr	Gly	Gly	Glu	Lys	Asn	355	360	365	
Asp	Pro	Asn	Ala	Leu	Pro	Gln	Gly	Phe	Phe	Val	Asp	Arg	Gln	Cys	Asn	370	375	380	
Ser	Val	Asn	Lys	Ser	Thr	Ile	Thr	Tyr	Phe	Leu	Asn	Tyr	Asp	Ile	Met				

385					390					395					400
Asn	Gly	Thr	Pro	Ala	Ile	Ala	Gly	Ile	Arg	Pro	Ala	Ser	Lys	Gly	Met
				405					410					415	
Glu	Lys	Leu	Gly	Leu	Ile	Ile	Asn	Pro	Arg	Pro	Glu	Glu	Gly	Phe	Val
			420					425					430		
Arg	Tyr	Ile	Pro	Cys	Lys	Ile	Asn	Thr	Ser	Pro	Asp	Leu	Phe	Asp	Ala
		435					440					445			
Ala	Leu	Lys	Pro	Asn	Ala	Thr	Thr	Leu	Ile	Asp	Ile	Val	Leu	Gln	Arg
	450					455					460				
Val	Val	Ser	Thr	Glu	Val	Phe	Arg	Phe	Glu	Gly	Thr	Asp	Gly	Val	Thr
465					470					475					480
Pro	Pro	Lys	Lys	Asp	Phe	Ser	Lys	Val	Lys	Pro	Gly	Thr	Asp	Ile	Ile
				485					490					495	

<210> 55
 <211> 1041
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 55
 atggcttcac aattcagaaa tctgggttttt gaaggaggcg gtgtgaaggg catcgcctat 60
 atcggcgcca tgcaggtgct ggagcagcgg ggactgctca aggatattgt ccgggtggga 120
 ggtaccagtg caggcgccat caacgcgctg atcttttcgc tgggctttac catcaaagag 180
 cagcaggata ttctcaactc caccaacttc agggagttaa tggacagctc gttcgggttc 240
 atccgaaact tccggagggt atggagcgaa ttcggttgga accgcggcga tgtattttcg 300
 gactgggccc gggagctggg gaaagagaag ctcggaacaa agaacgccac gttcggcgat 360
 ctgaaaaagg cgaaacgtcc cgatctgtac gtgatcggca ccaatctctc tacgggggttt 420
 tccgagacct ttctgcacga acgccacgcc gacatgcctc tggtagatgc ggtgcggata 480
 agcatgtcga tcccgctctt ttttgctgca cggaggctgg gaaaacgtaa ggatgtgtat 540
 gtggatggcg gggatgatgt caactatccc gtgaagctgt tgcacaggga gaagtatatc 600
 gatttggaga aagagaatga ggcggccccg tatgtggagt actacaatca agagaatgcc 660
 cggttttctgc tcgagcggcc cggccgaagc ctttatgtgt ataaccggca gactctcggt 720
 ctgcggctcg acacgcagga agagatcggc ctgttccggt acgatgagcc gctgaagggc 780
 aagcagatca accgtttccc cgaatacgcc agagccctga tcggctcgct gatgcaggta 840
 caggagaaca tccacctgaa aagtgcgcac tggcagcgaa cgctctacat caacacgctg 900
 gatgtgggca ccaccgattt cgacattacc gacgagaaga aaaaagtgtc ggtgaatgag 960
 gggatcaagg gagcggagac ctattttccg tggtttgagg atcccgaaga aaaaccggtg 1020
 aataaggtga atcttgctctg a 1041

<210> 56
 <211> 346
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 56
 Met Ala Ser Gln Phe Arg Asn Leu Val Phe Glu Gly Gly Gly Val Lys
 1 5 10 15
 Gly Ile Ala Tyr Ile Gly Ala Met Gln Val Leu Glu Gln Arg Gly Leu
 20 25 30
 Leu Lys Asp Ile Val Arg Val Gly Gly Thr Ser Ala Gly Ala Ile Asn
 35 40 45
 Ala Leu Ile Phe Ser Leu Gly Phe Thr Ile Lys Glu Gln Gln Asp Ile
 50 55 60
 Leu Asn Ser Thr Asn Phe Arg Glu Phe Met Asp Ser Ser Phe Gly Phe
 65 70 75 80
 Ile Arg Asn Phe Arg Arg Leu Trp Ser Glu Phe Gly Trp Asn Arg Gly
 85 90 95
 Asp Val Phe Ser Asp Trp Ala Gly Glu Leu Val Lys Glu Lys Leu Gly

accacgcct caggtaccga tatcccttca tag

1413

<210> 58
 <211> 470
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 58
 Met Gln Leu Val Phe Val His Gly Trp Ser Val Thr His Thr Asn Thr
 1 5 10 15
 Tyr Gly Glu Leu Pro Glu Ser Leu Ala Ala Gly Ala Ala Thr His Gly
 20 25 30
 Leu Gln Ile Asp Ile Arg His Val Phe Leu Gly Lys Tyr Ile Ser Phe
 35 40 45
 His Asp Glu Val Thr Leu Asp Ile Ala Arg Ala Phe Asp Lys Ala
 50 55 60
 Leu Arg Asp Met Ser Gly Asp Gly Asp Thr Val Ser Pro Phe Ser Cys
 65 70 75 80
 Ile Thr His Ser Thr Gly Gly Pro Val Val Arg His Trp Ile Asn Lys
 85 90 95
 Phe Tyr Gly Ala Arg Gly Leu Ser Lys Leu Pro Leu Glu His Leu Val
 100 105 110
 Met Leu Ala Pro Ala Asn His Gly Ser Ser Leu Ala Val Leu Gly Lys
 115 120 125
 Gln Arg Leu Gly Arg Ile Lys Ser Trp Phe Asp Gly Val Glu Pro Gly
 130 135 140
 Gln Lys Val Leu Asp Trp Leu Ser Leu Gly Ser Asn Gly Gln Trp Ala
 145 150 155 160
 Leu Asn Arg Asp Phe Leu Ser Tyr Arg Pro Ala Lys His Gly Phe Phe
 165 170 175
 Pro Phe Val Leu Thr Gly Gln Gly Ile Asp Thr Lys Phe Tyr Asp Phe
 180 185 190
 Leu Asn Ser Tyr Leu Val Glu Pro Gly Ser Asp Gly Val Val Arg Val
 195 200 205
 Ala Gly Ala Asn Met His Phe Arg Tyr Leu Ser Leu Val Gln Ser Glu
 210 215 220
 Thr Val Leu His Thr Pro Gly Lys Val Leu Gln Leu Glu Tyr Asn Glu
 225 230 235 240
 Arg Arg Pro Val Lys Ser Pro Gln Ala Val Pro Met Gly Val Phe Ser
 245 250 255
 Gln Phe Ser His Ser Gly Asp Lys Met Gly Ile Met Ala Val Lys Arg
 260 265 270
 Lys Lys Asp Ala His Gln Met Ile Val Thr Glu Val Leu Lys Cys Leu
 275 280 285
 Cys Val Ser Asp Ser Asp Glu Tyr Gln Gln Arg Gly Leu Glu Leu Ala
 290 295 300
 Glu Leu Thr Ala Ser Glu Gln Arg Lys Pro Ile Glu Asp Gln Asp Lys
 305 310 315 320
 Ile Ile Ser Arg Tyr Ser Met Leu Val Phe Arg Val Arg Asp Gln Ala
 325 330 335
 Gly Asn Thr Ile Gly Val His Asp Phe Asp Ile Leu Leu Leu Ala Gly
 340 345 350
 Asp Thr Tyr Ser Pro Asp Lys Leu Pro Glu Gly Phe Phe Met Asp Lys
 355 360 365
 Gln Ala Asn Arg Asp Ala Gly Ser Leu Ile Tyr Tyr Val Asp Ala Asp
 370 375 380
 Lys Met Ser Glu Met Lys Asp Gly Cys Tyr Gly Leu Arg Val Val Val
 385 390 395 400
 Arg Pro Glu Lys Gly Phe Ser Tyr Tyr Thr Thr Gly Glu Phe Arg Ser
 405 410 415
 Glu Gly Ile Pro Val Asp Arg Val Phe Ala Ala Asn Glu Thr Thr Tyr

420 425 430
 Ile Asp Ile Thr Met Asn Arg Ser Val Asp Gln Asn Val Phe Arg Phe
 435 440 445
 Ser Pro Ala Thr Glu Pro Pro Glu Ser Phe Lys Arg Thr Thr Pro Ser
 450 455 460
 Gly Thr Asp Ile Pro Ser
 465 470

<210> 59
 <211> 1038
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 59
 atgacaacac aatttagaaa cttgatcttt gaaggcggcg gtgtaaaagg cgttgcttac 60
 attggcgcca tgcagattct tgaaaatcgt ggcgtgttgc aagatattcg ccgagtcgga 120
 ggggtgcagt cgggtgcatg taacgcgctg atttttgcgc tgggttacac ggtccgtgag 180
 caaaaagaga tcttacaagc caccgatttt aaccagttta tggataactc ttgggggggtt 240
 attcgtgata ttgcagcgt tgctcgagac tttggctgga ataagggtga tttcttttagt 300
 agctggatag gtgatttgat tcatcgctgt ttggggaatc gccgagcgac gttcaaagat 360
 ctgcaaaagg ccaagcttcc tgatctttat gtcacggtta ctaatctgtc tacagggttt 420
 gcagaggtgt tttctgccga aagacacccc gatatggagc tggcgacagc ggtgctgata 480
 tccatgtcga taccgctgtt ctttgcggca gtgcgtcatg gtgatcgaca agatgtgtat 540
 gtcgatgggg gtgttcaact taactatccg attaaactgt ttgatcgga gcgttatatt 600
 gatctggcca aagatcccgg tgccgttcgg cgaacgggtt attacaacaa agaaaacgct 660
 cgctttcagc ttgatcggcc gggccatagc ccctatgttt acaatcgcca gaccttgggt 720
 ttgcgactgg atagtcgca ggagatagg ctctttcgtt atgacgaacc cctcaagggc 780
 aaaccatta agtccttcac tgactacgct cgacaacttt tcggtgcgct gatgaatgca 840
 caggaaaaga ttcattctaca tggcgatgat tggcaacgca cggctctatat cgatacactc 900
 gatgtgggta cgacggactt caatctttct gatgcaacca agcaagcact gattgagcaa 960
 ggaattaacg gcaccgaaaa ttatttcgac tggtttgata atccgtaga gaagcctgtg 1020
 aatagagtgg agtcatag 1038

<210> 60
 <211> 345
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 60
 Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys
 1 5 10 15
 Gly Val Ala Tyr Ile Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val
 20 25 30
 Leu Gln Asp Ile Arg Arg Val Gly Gly Cys Ser Ala Gly Ala Ile Asn
 35 40 45
 Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile
 50 55 60
 Leu Gln Ala Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val
 65 70 75 80
 Ile Arg Asp Ile Arg Arg Leu Ala Arg Asp Phe Gly Trp Asn Lys Gly
 85 90 95
 Asp Phe Phe Ser Ser Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly
 100 105 110
 Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp
 115 120 125
 Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ala Glu Val Phe
 130 135 140
 Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile

145		150		155		160
Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Val Arg His Gly Asp Arg						
	165		170			175
Gln Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Ile Lys						
	180		185			190
Leu Phe Asp Arg Glu Arg Tyr Ile Asp Leu Ala Lys Asp Pro Gly Ala						
	195		200			205
Val Arg Arg Thr Gly Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Gln Leu						
	210		215			220
Asp Arg Pro Gly His Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly						
	225		230			235
Leu Arg Leu Asp Ser Arg Glu Glu Ile Gly Leu Phe Arg Tyr Asp Glu						
	245		250			255
Pro Leu Lys Gly Lys Pro Ile Lys Ser Phe Thr Asp Tyr Ala Arg Gln						
	260		265			270
Leu Phe Gly Ala Leu Met Asn Ala Gln Glu Lys Ile His Leu His Gly						
	275		280			285
Asp Asp Trp Gln Arg Thr Val Tyr Ile Asp Thr Leu Asp Val Gly Thr						
	290		295			300
Thr Asp Phe Asn Leu Ser Asp Ala Thr Lys Gln Ala Leu Ile Glu Gln						
	305		310			315
Gly Ile Asn Gly Thr Glu Asn Tyr Phe Asp Trp Phe Asp Asn Pro Leu						
	325		330			335
Glu Lys Pro Val Asn Arg Val Glu Ser						
	340		345			

<210> 61
 <211> 1257
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 61	
atgacattaa aactctccct gctgatcgcg agcctgagcg ccgtgtctcc agcagtcttg	60
gcaaacgacg tcaatccagc gccactcatg gcgccgtccg aagcggattc cgcgagacg	120
ctgggcagtc tgacgtacac ctatgttcgc tgctggtatc gtccggctgc gacgcataat	180
gacaccttaca ccacctggga gtgggcgaag aacgcggacg gcagtgattt caccattgat	240
ggctatttggg ggtcatcggt gagttacaaa aacatgttct ataccgatac tcagcccgat	300
accatcatgc agcgctgtgc agagacgttg gggtttaacc acgataccgc tgacatcacc	360
tatgccgcgg ccgataaccg tttctcctac aaccacacca tctggagcaa cgatgtcgcc	420
aacgcgcgca gcaaaatcaa taaggtgatc gcctttgggt acagcctgtc agacacgggc	480
aacattttta acgcctcgca atggcgcttc ccgaaccgca actcctgggt tgtcggccac	540
ttctcaaacg ggtttgtctg gaccgagtat ctggcgcaag gtttggggct gcccctctac	600
aactgggcgg tgggcggcgc ggcggggcgc aatcaatact gggcgctgac tggcgtgaat	660
gaacagggtca gttcgtacct gacctacatg gagatggcgc cgaattaccg tgcggagAAC	720
acgtgtttta cactcgaatt cggctctgaat gattttatga actacgaccg ttcactggca	780
gacgtcaaag cagattacag ctcggcgctg attcgtctgg tggagccgg agcgaaaaat	840
atggtgctgt tgaccctacc ggatgccacg cgcgcgcgcg agttccaata ttcaacgcaa	900
gaacacatcg acgaggtgcg cgccaaagtg attggcatga acgcgttcat tcgtgagcag	960
gcacgctact tccagatgca gggcatcaac atttcgctgt ttgacgccta cacgctgttt	1020
gatcagatga tcgcccagcc agccgcgcac ggctttgata atgccagcgc gccatgtctt	1080
gatattcagc gcagctctgc ggcgactat ctctacacgc atgctctggc agccgagtgt	1140
gcctcatccg gttcagaccg ctttgtgttc tgggatgtga ctacccaac cacggcaacg	1200
catcgctaca tcgccgacca cattctggct accggtgttg cgcagttccc gcgttaa	1257

<210> 62
 <211> 418
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(21)

<400> 62

Met	Thr	Leu	Lys	Leu	Ser	Leu	Leu	Ile	Ala	Ser	Leu	Ser	Ala	Val	Ser
1				5					10					15	
Pro	Ala	Val	Leu	Ala	Asn	Asp	Val	Asn	Pro	Ala	Pro	Leu	Met	Ala	Pro
			20					25					30		
Ser	Glu	Ala	Asp	Ser	Ala	Gln	Thr	Leu	Gly	Ser	Leu	Thr	Tyr	Thr	Tyr
		35					40					45			
Val	Arg	Cys	Trp	Tyr	Arg	Pro	Ala	Ala	Thr	His	Asn	Asp	Pro	Tyr	Thr
	50				55						60				
Thr	Trp	Glu	Trp	Ala	Lys	Asn	Ala	Asp	Gly	Ser	Asp	Phe	Thr	Ile	Asp
65					70				75					80	
Gly	Tyr	Trp	Trp	Ser	Ser	Val	Ser	Tyr	Lys	Asn	Met	Phe	Tyr	Thr	Asp
				85					90					95	
Thr	Gln	Pro	Asp	Thr	Ile	Met	Gln	Arg	Cys	Ala	Glu	Thr	Leu	Gly	Leu
			100					105					110		
Thr	His	Asp	Thr	Ala	Asp	Ile	Thr	Tyr	Ala	Ala	Ala	Asp	Thr	Arg	Phe
		115					120					125			
Ser	Tyr	Asn	His	Thr	Ile	Trp	Ser	Asn	Asp	Val	Ala	Asn	Ala	Pro	Ser
	130					135					140				
Lys	Ile	Asn	Lys	Val	Ile	Ala	Phe	Gly	Asp	Ser	Leu	Ser	Asp	Thr	Gly
145					150				155					160	
Asn	Ile	Phe	Asn	Ala	Ser	Gln	Trp	Arg	Phe	Pro	Asn	Pro	Asn	Ser	Trp
				165					170					175	
Phe	Val	Gly	His	Phe	Ser	Asn	Gly	Phe	Val	Trp	Thr	Glu	Tyr	Leu	Ala
			180					185					190		
Gln	Gly	Leu	Gly	Leu	Pro	Leu	Tyr	Asn	Trp	Ala	Val	Gly	Gly	Ala	Ala
		195					200					205			
Gly	Arg	Asn	Gln	Tyr	Trp	Ala	Leu	Thr	Gly	Val	Asn	Glu	Gln	Val	Ser
	210					215					220				
Ser	Tyr	Leu	Thr	Tyr	Met	Glu	Met	Ala	Pro	Asn	Tyr	Arg	Ala	Glu	Asn
225					230					235				240	
Thr	Leu	Phe	Thr	Leu	Glu	Phe	Gly	Leu	Asn	Asp	Phe	Met	Asn	Tyr	Asp
				245					250					255	
Arg	Ser	Leu	Ala	Asp	Val	Lys	Ala	Asp	Tyr	Ser	Ser	Ala	Leu	Ile	Arg
			260					265					270		
Leu	Val	Glu	Ala	Gly	Ala	Lys	Asn	Met	Val	Leu	Leu	Thr	Leu	Pro	Asp
		275					280					285			
Ala	Thr	Arg	Ala	Pro	Gln	Phe	Gln	Tyr	Ser	Thr	Gln	Glu	His	Ile	Asp
	290					295					300				
Glu	Val	Arg	Ala	Lys	Val	Ile	Gly	Met	Asn	Ala	Phe	Ile	Arg	Glu	Gln
305					310					315				320	
Ala	Arg	Tyr	Phe	Gln	Met	Gln	Gly	Ile	Asn	Ile	Ser	Leu	Phe	Asp	Ala
				325					330					335	
Tyr	Thr	Leu	Phe	Asp	Gln	Met	Ile	Ala	Asp	Pro	Ala	Ala	His	Gly	Phe
			340					345					350		
Asp	Asn	Ala	Ser	Ala	Pro	Cys	Leu	Asp	Ile	Gln	Arg	Ser	Ser	Ala	Ala
		355					360					365			
Asp	Tyr	Leu	Tyr	Thr	His	Ala	Leu	Ala	Ala	Glu	Cys	Ala	Ser	Ser	Gly
	370					375					380				
Ser	Asp	Arg	Phe	Val	Phe	Trp	Asp	Val	Thr	His	Pro	Thr	Thr	Ala	Thr
385					390					395				400	
His	Arg	Tyr	Ile	Ala	Asp	His	Ile	Leu	Ala	Thr	Gly	Val	Ala	Gln	Phe
				405					410					415	
Pro	Arg														

<210> 63
 <211> 1242
 <212> DNA
 <213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 63

```
atgaaaaata cgtaaatttt ggctggctgt atattggcag ctccagccgt cgcagatgac      60
ctaacaatca cccctgaaac tataagtgtg cgctacgcgt ctgaggtgca gaacaaacaa      120
acatacactt atgttcgctg ctggtatcgt ccagcgcaga accatgacga cccttccact      180
gagtgggaat gggctcgtga cgacaatggc gattacttca ctatcgatgg gtactggtgg      240
tcgtctgtct ccttcaaaaa catgttctat accaatatccc cgcaaacaga aattgaaaac      300
cgctgtaaag aaacactagg ggtaaatcat gatagtgcg atcttcttta ctatgcatca      360
gacaatcggt tctcctacaa ccatagtatt tggacaaacg acaacgcagt aaacaacaaa      420
atcaatcgta ttgtcgcatt cggatagatg ctgtctgaca ccggtaatct gtacaatgga      480
tcccaatggg tattcccca ccgtaattct tggtttctcg gtcacttttc aaacggtttg      540
gtgtggactg aatacttagc gcaaaacaaa aacgtaccac tgtacaactg ggcggtcggt      600
ggcgccgccc gcaccaacca atacgtcgca ttgacaggca tttatgacca agtgacgtct      660
tatcttacgt acatgaagat ggcaaagaac tacaacccaa acaacagttt gatgacgctg      720
gaatttggcc taaatgattt catgaattac ggccgagaag tggcgagcgt gaaagctgac      780
ttaagtagcg cattgattcg cttgaccgaa tcaggcgcaa gcaacattct actcttcacg      840
ttaccggacg caacaaaggc accgcagttt aaatattcga ctcaggagga aattgagacc      900
gttcgagcta agattcttga gttcaacact tttattgaag aacaagcggt actctatcaa      960
gctaaaggac tgaatgtggc cctctacgat gctcatagca tctttgatca gctgacatcc     1020
aatcctaaac aacacggttt tgagaactca acagatgcct gtctgaacat caaccgcagt     1080
tcctctgtcg actaccttta cagtcatgag ctaactaacg attgtgcgta tcatagctct     1140
gataaatatg tgttctgggg agtcactcac ccaaccacag caacacataa atacattgcc     1200
gaccaaatac ttcagacca gctagaccag ttcaatttct aa                        1242
```

<210> 64

<211> 413

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(18)

<400> 64

```
Met Lys Asn Thr Leu Ile Leu Ala Gly Cys Ile Leu Ala Ala Pro Ala
 1          5          10          15
Val Ala Asp Asp Leu Thr Ile Thr Pro Glu Thr Ile Ser Val Arg Tyr
 20          25          30
Ala Ser Glu Val Gln Asn Lys Gln Thr Tyr Thr Tyr Val Arg Cys Trp
 35          40          45
Tyr Arg Pro Ala Gln Asn His Asp Asp Pro Ser Thr Glu Trp Glu Trp
 50          55          60
Ala Arg Asp Asp Asn Gly Asp Tyr Phe Thr Ile Asp Gly Tyr Trp Trp
 65          70          75          80
Ser Ser Val Ser Phe Lys Asn Met Phe Tyr Thr Asn Thr Pro Gln Thr
 85          90          95
Glu Ile Glu Asn Arg Cys Lys Glu Thr Leu Gly Val Asn His Asp Ser
100          105          110
Ala Asp Leu Leu Tyr Tyr Ala Ser Asp Asn Arg Phe Ser Tyr Asn His
115          120          125
Ser Ile Trp Thr Asn Asp Asn Ala Val Asn Asn Lys Ile Asn Arg Ile
130          135          140
Val Ala Phe Gly Asp Ser Leu Ser Asp Thr Gly Asn Leu Tyr Asn Gly
145          150          155          160
Ser Gln Trp Val Phe Pro Asn Arg Asn Ser Trp Phe Leu Gly His Phe
165          170          175
Ser Asn Gly Leu Val Trp Thr Glu Tyr Leu Ala Gln Asn Lys Asn Val
180          185          190
Pro Leu Tyr Asn Trp Ala Val Gly Gly Ala Ala Gly Thr Asn Gln Tyr
```


<223> Obtained from an environmental sample.

<400> 66

```
Met Asn Pro Phe Leu Glu Asp Lys Ile Lys Ser Ser Gly Pro Lys Lys
 1          5          10          15
Ile Leu Ala Cys Asp Gly Gly Gly Ile Leu Gly Leu Met Ser Val Glu
 20          25          30
Ile Leu Ala Lys Ile Glu Ala Asp Tyr Phe Arg Thr Lys Leu Gly Lys Asp
 35          40          45
Gln Asn Phe Val Leu Ala Asp Tyr Phe Asp Phe Val Cys Gly Thr Ser
 50          55          60
Thr Gly Ala Ile Ile Ala Ala Cys Ile Ser Ser Gly Met Ser Met Ala
 65          70          75          80
Lys Ile Arg Gln Phe Tyr Leu Asp Ser Gly Lys Gln Met Phe Asp Lys
 85          90          95
Ala Ser Leu Leu Lys Arg Leu Gln Tyr Ser Tyr Asp Asp Glu Pro Leu
100          105          110
Ala Arg Gln Leu Arg Ala Ala Phe Asp Glu Gln Leu Lys Glu Thr Asp
115          120          125
Ala Lys Leu Gly Ser Ala His Leu Lys Thr Leu Leu Met Met Val Met
130          135          140
Arg Asn His Ser Thr Asp Ser Pro Trp Pro Val Ser Asn Asn Pro Tyr
145          150          155          160
Ala Lys Tyr Asn Asn Ile Ala Arg Lys Asp Cys Asn Leu Asn Leu Pro
165          170          175
Leu Trp Gln Leu Val Arg Ala Ser Thr Ala Ala Pro Thr Tyr Phe Pro
180          185          190
Pro Glu Val Ile Thr Phe Ala Asp Gly Thr Pro Glu Glu Tyr Asn Phe
195          200          205          210
Ile Phe Val Asp Gly Gly Val Thr Thr Tyr Asn Asn Pro Ala Tyr Leu
210          215          220
Ala Phe Leu Met Ala Thr Ala Lys Pro Tyr Ala Leu Asn Trp Pro Thr
225          230          235          240
Gly Ser Asn Gln Leu Ile Val Ser Val Gly Thr Gly Ser Ala Ala
245          250          255
Asn Val Arg Pro Asn Leu Asp Val Asp Asp Met Asn Leu Ile His Phe
260          265          270
Ala Lys Asn Ile Pro Ser Ala Leu Met Asn Ala Ala Ser Ala Gly Trp
275          280          285
Asp Met Thr Cys Arg Val Leu Gly Glu Cys Arg His Gly Gly Met Leu
290          295          300
Asp Arg Glu Phe Gly Asp Met Val Met Pro Ala Ser Arg Asp Leu Asn
305          310          315          320
Phe Thr Gly Pro Lys Leu Phe Thr Tyr Met Arg Tyr Asp Pro Asp Val
325          330          335
Ser Phe Glu Gly Leu Lys Thr Ile Gly Ile Ser Asp Ile Asp Pro Ala
340          345          350
Lys Met Gln Gln Met Asp Ser Val Asn Asn Ile Pro Asp Ile Gln Arg
355          360          365
Val Gly Ile Glu Tyr Ala Lys Arg His Val Asp Thr Ala His Phe Glu
370          375          380
Gly Phe Lys
385
```

<210> 67

<211> 1419

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 67

atggtcattg tcttcgtcca cggatggagc gtgcgcaaca ccaacacgta cgggcagctg

60


```

cccttgcgtc tcaagaagag cttcaaagcc gccgggaaac agattcaggt cgagaacatc 120
tacctgggcg agtacgtgag ctttgacgac caggtaacag tcgacgacat cgcccgcgca 180
ttcgattgcg cactgcgggg aaaactatac gatccggcga cgaagcagtg gacgaagtgc 240
gcctgcatca ctcatccac cggcgggccc gtcgcgcgct tgtggatgga tctctactac 300
ggcgccgcca gactggccga gtgcccgatg tcccacctcg tgatgctcgc cccggccaat 360
catggctcgg cccttgcccc gctcggcaag agccgcctca gccgcatcaa gagcttcttc 420
gaggggtgctg aaccggggcca gcgcgtcctc gactggctcg aactcggcag tgagctgagt 480
tgggcccctca acacgagatg gctcgactac gactgccgcg ccgccgcctg ctgggtcttc 540
accctcaccg gccagcgcat cgaccggagt ttgtacgacc atctcaacag ctataccggt 600
gagcagggat cggatggcgt cgtgcgcgtc gccgcggcca acatgaacac caagctgctg 660
acctttgaac agaaggggcg caagctcgtg ttcacaggcc agaagaagac cgccgacacc 720
ggccttgggcg tcgtgccggg ccggtcgcac tccggccgcg acatgggcat catcgccagc 780
gtgcgcggca ccggcgacca tcccaccctg gaatgggtga ctcgttgcct ggccgtcacc 840
gacgtcaaca cgtacgatgc cgtctgtaag gatctggacg ctctcaccgc ccagaccagc 900
aaggatgaaa aggtggaaga ggtcaaaggc ctgctgcgga cggtcagata ccagacggac 960
cgctacgtca tgctcgtctt ccgcctgaag aacgaccgcg gcgactacct ctccgattac 1020
gatctcctgc tcaccgcggg acccaactac tcgccgcagc acctgcccga aggcttcttc 1080
gtcgaccgcc aacggaacca gcggaaccgg ggcaagtcca cttactacct gaactacgac 1140
gccatggcca aattgaaagg taagaccgcc gagggccgtc tgggcttcaa gatcctggcg 1200
cgcccgggtga aaggcggcct cgtctactat gaggttgcgg agttccagtc cgacgtgggc 1260
ggcgtcagca gcatgctgca gcccaacgca acagtgatga tcgacatcac cctcaatcgc 1320
aacgtcgacg cgcgcgtctt ccggttcacc gagaatctgc ccacgggtga ccagggcgag 1380
gaaatcagcg gcgtcccgtc ggggcagaac gtcccgtag 1419

```

<210> 68
 <211> 472
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 68

Met	Val	Ile	Val	Phe	Val	His	Gly	Trp	Ser	Val	Arg	Asn	Thr	Asn	Thr
1				5					10					15	
Tyr	Gly	Gln	Leu	Pro	Leu	Arg	Leu	Lys	Ser	Phe	Lys	Ala	Ala	Gly	
			20					25				30			
Lys	Gln	Ile	Gln	Val	Glu	Asn	Ile	Tyr	Leu	Gly	Glu	Tyr	Val	Ser	Phe
		35					40					45			
Asp	Asp	Gln	Val	Thr	Val	Asp	Asp	Ile	Ala	Arg	Ala	Phe	Asp	Cys	Ala
	50					55				60					
Leu	Arg	Glu	Lys	Leu	Tyr	Asp	Pro	Ala	Thr	Lys	Gln	Trp	Thr	Lys	Phe
65					70					75				80	
Ala	Cys	Ile	Thr	His	Ser	Thr	Gly	Gly	Pro	Val	Ala	Arg	Leu	Trp	Met
				85					90					95	
Asp	Leu	Tyr	Tyr	Gly	Ala	Ala	Arg	Leu	Ala	Glu	Cys	Pro	Met	Ser	His
		100						105					110		
Leu	Val	Met	Leu	Ala	Pro	Ala	Asn	His	Gly	Ser	Ala	Leu	Ala	Gln	Leu
		115					120						125		
Gly	Lys	Ser	Arg	Leu	Ser	Arg	Ile	Lys	Ser	Phe	Phe	Glu	Gly	Val	Glu
	130					135					140				
Pro	Gly	Gln	Arg	Val	Leu	Asp	Trp	Leu	Glu	Leu	Gly	Ser	Glu	Leu	Ser
145					150					155					160
Trp	Ala	Leu	Asn	Thr	Arg	Trp	Leu	Asp	Tyr	Asp	Cys	Arg	Ala	Ala	Ala
			165						170					175	
Cys	Trp	Val	Phe	Thr	Leu	Thr	Gly	Gln	Arg	Ile	Asp	Arg	Ser	Leu	Tyr
			180					185					190		
Asp	His	Leu	Asn	Ser	Tyr	Thr	Gly	Glu	Gln	Gly	Ser	Asp	Gly	Val	Val
		195					200					205			
Arg	Val	Ala	Ala	Ala	Asn	Met	Asn	Thr	Lys	Leu	Leu	Thr	Phe	Glu	Gln
	210					215						220			
Lys	Gly	Arg	Lys	Leu	Val	Phe	Thr	Gly	Gln	Lys	Lys	Thr	Ala	Asp	Thr
225					230					235					240
Gly	Leu	Gly	Val	Val	Pro	Gly	Arg	Ser	His	Ser	Gly	Arg	Asp	Met	Gly

<223> Obtained from an environmental sample.

<400> 70

```
Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys
 1          5          10          15
Gly Val Ala Tyr Ile Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val
 20          25          30
Leu Gln Asp Ile Arg Arg Val Gly Cys Ser Ala Gly Ala Ile Asn
 35          40          45
Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile
 50          55          60
Leu Gln Ala Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val
 65          70          75          80
Ile Arg Asp Ile Arg Arg Leu Ala Arg Asp Phe Gly Trp His Lys Gly
 85          90          95
Asp Phe Phe Asn Ser Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly
100          105          110
Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp
115          120          125
Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Tyr Ala Glu Val Phe
130          135          140
Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile
145          150          155          160
Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Val Arg His Gly Asp Arg
165          170          175
Gln Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Ile Lys
180          185          190
Leu Phe Asp Arg Glu Arg Tyr Ile Asp Leu Ala Lys Asp Pro Gly Ala
195          200          205
Val Arg Arg Thr Gly Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Gln Leu
210          215          220
Glu Arg Pro Gly Tyr Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly
225          230          235          240
Leu Arg Leu Asp Ser Arg Glu Glu Ile Gly Leu Phe Arg Tyr Asp Glu
245          250          255
Pro Leu Lys Gly Lys Pro Ile Lys Ser Phe Thr Asp Tyr Ala Arg Gln
260          265          270
Leu Phe Gly Ala Leu Met Asn Ala Gln Glu Lys Ile His Leu His Gly
275          280          285
Asp Asp Trp Gln Arg Thr Val Tyr Ile Asp Thr Leu Asp Val Gly Thr
290          295          300
Thr Asp Phe Asn Leu Ser Asp Ala Thr Lys Gln Ala Leu Ile Glu Gln
305          310          315          320
Gly Ile Asn Gly Thr Glu Asn Tyr Phe Glu Trp Phe Asp Asn Pro Leu
325          330          335
Glu Lys Pro Val Asn Arg Val Glu Ser
340          345
```

<210> 71

<211> 3264

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 71

```
atgtcgctat catcaccgcc cgaaaccccc gaaccccccg aacccccgtc acccggcgcg      60
cgatcgctcc ggggaggatg gagccgccgg gtggccggcc tgctggccct ggtgctgctc      120
accgggctcc tccagatcgt cgtgccgctc gcacggcccc cgcgggcggc cgtacagcag      180
cccgcgatga cgtggaacct gcatggggcc aagaagaccg cggaactggt tcccgatctg      240
atgcgtaacc ataacgtcac cgtcgcggcc ctccaggaag tggccaacgg caacttcctg      300
ggcctcactc ccacagagca cgacgtgccc tacctcaagc cggacggcac gacctcgact      360
ccgccggatc cgcagaaatg gcgggtcgag aagtacaacc tcgccaagga cgatgcaacc      420
```

gctttcgtga	tccggaccgg	ctccaacaac	cgcgggctcg	cgatcgtcac	caccagggac	480
gtcggcgatg	tctcgcagaa	tgtacacgtc	gtcaatgtga	ccgaggattg	ggaaggcaag	540
atgttccccg	ccctgggggt	gaagatcgac	ggcgcttggt	actactccat	ccacgcctcc	600
accacgccga	agcgcgcgaa	caacaacgcc	ggcactctgg	tcgaggacct	ctccaagctg	660
cacgagacgg	ccgctttcga	aggcgactgg	gccgcgatgg	gcgactggaa	ccggtacccc	720
tccgaggact	cgaacgccta	cgagaaccaa	cggaagcatc	tcaaaggcgc	catgcggaca	780
aactttccgg	ataatcaggc	ggcgttgcgc	gaagtcttgg	agttcgagtc	cgacgaacgc	840
gtcatctggc	aggggtgcgag	gacccacgac	cacggcgccg	agctcgacta	catggtggcc	900
aagggaagccg	gtaacgacta	caaggccagc	cgatcgacgt	cgaagcacgg	ctccgatcac	960
tacccggtgt	tcttcggtat	tggggacgat	tcggacacct	gcatgggagg	cacggcgccg	1020
gtggcggcga	acgcgcgcgg	tgcggccgcc	accgagtcct	gtcccctgga	cgacgatctg	1080
ccggccgtca	tctgtctgat	gggggacagc	tatatctccg	gcgagggagg	gcgctggcag	1140
ggcaacgcc	acacctcttc	cgggggcgac	tcctggggca	ccgaccgggc	cgccgacggc	1200
acggaggtct	acgagaagaa	ctccgaaggc	agcgatgcct	gtcaccgctc	cgacgtcgcg	1260
gagatcaagc	gcgcgcgacat	cgccgacatc	ccggcggaac	gcaggatcaa	catcgccctgc	1320
tcgggcgccg	agaccaagca	cctgctcacc	gagaccttca	agggtgaaaa	gccccagatc	1380
gagcagctcg	ccgacgtcgc	cgaaacccac	cgggtggaca	cgatcggtgt	ctccatcggc	1440
ggcaacgacc	tcgagttcgc	cgacatcggt	agccagtgcg	ccacggcctt	catgctcggy	1500
gaaggcgctg	gtcacacgga	cgtcgacgat	acccttgata	gccggttggg	cgatgtgagc	1560
agatccgtct	ccgaggttct	ggccgccatc	cgcgacacca	tgatcgaggc	cgggcaggac	1620
gataccagct	acaagctcgt	tctccagtcc	taccctgccc	cgttgcccgc	gtcggatgag	1680
atgcggtaca	cgggcgatca	ctacgaccgg	tacaccgagg	gcggctgccc	cttctatgac	1740
gtcgacctgg	actggacgcg	cgacgtcctc	atcaaaaaga	tcgaagccac	gctgcgcggg	1800
gtggccaaga	gtgcgggatgc	ggccttcttc	aacctgacgg	acacgttcac	ggggcacagag	1860
ctgtgtctga	agcacacccg	acaggcgagg	tccggcgaat	cgctggcgaa	tccaatactg	1920
gaacacgagg	ccgagtgggt	gcgcttcgta	ccaggtctca	ccacgccggg	tgacacggcc	1980
gaagccatcc	atccgaatgc	gttcggccag	cacgccctca	gtagctgcct	cagccaggcc	2040
gtccggacga	tggacgattc	ggaccagagg	tacttcgagt	gcgacggggc	ggacaccgga	2100
aatccccgcc	tctgttggcc	acgcagttcg	cccatcgacg	ccgtcgtgga	gaccgcggac	2160
ggttggcagg	gcgacgactt	ccggctcgcc	gaccactaca	tgttccagcg	cggcgtctac	2220
gcccgtttca	acccgacgc	ggaccggagc	ggcgcgatcg	atccggggccg	aatcaccttc	2280
ggccaaaccg	acggatggct	cgggtgagtg	aaggacactt	cgaactggcc	gagcctgagt	2340
ggaaccgact	tctgtcgacgg	catcgacgcc	gccgccgagg	cacgcaccag	caccggtcac	2400
cagctgtctgc	tgttccacag	cggcggttag	gacaaccagt	acgtgcgggt	cgagatggcg	2460
ccggggacca	ctgacgacca	gctcgtcagg	ggccccgtgc	ccatcacgag	gtactggccc	2520
ctcttcagg	acaccccttt	cgaatggggc	gtggatgccg	ccgcggggga	ccagctgaac	2580
cgggcgatgg	tcttcaggca	cggctatgtg	gggctgggtc	aggtctccct	cgacgctctc	2640
agcgacgaat	ggctcgtgga	accgacgttg	atcggtcggg	cgattccggc	gctggagggc	2700
accccgttcg	agacaggggt	ggacgcggcg	atcgtgcggc	accagcaacc	gacggccatg	2760
tgggtcgacc	tgatcagcgg	tacgcaggtg	gtgacgctgc	tggtggactt	ggacgatctg	2820
tcgaagagca	cgtacatgac	gagcatcgtg	gagatcacga	cgatgtggcc	gagcctgcgc	2880
ggcagcatct	tcgactggac	cggcgagag	gcgtggaagc	cggagaagat	gcagatcaag	2940
accggcgccg	gcgatcccta	cgacatggac	gccgacgacc	ggcaggccaa	gcctgcggtg	3000
tcgggctcgc	acgagcagtg	ccgtccggag	ggactagcgc	agacccccgc	cgtgaacacg	3060
ccgtactgcg	aggtgtacga	caccgacggc	cgcgaaatgg	tgggcgggaa	cgggcacgac	3120
aggcggttca	tcggctactt	caccggctgg	cgcaccggtg	agaacgacca	gccgcgctac	3180
ctggtgccga	acatcccgtg	gtcgaaggtg	acccacatca	actacgcgtt	cgcgaaagtc	3240
gacgacgaca	acaagatcca	aaga				3264

<210> 72
 <211> 1088
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 72
 Met Ser Leu Ser Ser Pro Pro Glu Thr Pro Glu Pro Pro Glu Pro Pro
 1 5 10 15
 Ser Pro Gly Ala Arg Ser Leu Arg Gly Gly Trp Ser Arg Arg Val Ala
 20 25 30
 Gly Leu Leu Ala Leu Val Leu Leu Thr Gly Leu Leu Gln Ile Val Val
 35 40 45

Pro	Leu	Ala	Arg	Pro	Ala	Ala	Ala	Ala	Val	Gln	Gln	Pro	Ala	Met	Thr
50					55					60					
Trp	Asn	Leu	His	Gly	Ala	Lys	Lys	Thr	Ala	Glu	Leu	Val	Pro	Asp	Leu
65					70					75					80
Met	Arg	Asn	His	Asn	Val	Thr	Val	Ala	Ala	Leu	Gln	Glu	Val	Ala	Asn
				85					90					95	
Gly	Asn	Phe	Leu	Gly	Leu	Thr	Pro	Thr	Glu	His	Asp	Val	Pro	Tyr	Leu
			100					105					110		
Lys	Pro	Asp	Gly	Thr	Thr	Ser	Thr	Pro	Pro	Asp	Pro	Gln	Lys	Trp	Arg
		115					120					125			
Val	Glu	Lys	Tyr	Asn	Leu	Ala	Lys	Asp	Asp	Ala	Thr	Ala	Phe	Val	Ile
	130					135					140				
Arg	Thr	Gly	Ser	Asn	Asn	Arg	Gly	Leu	Ala	Ile	Val	Thr	Thr	Gln	Asp
145					150					155					160
Val	Gly	Asp	Val	Ser	Gln	Asn	Val	His	Val	Val	Asn	Val	Thr	Glu	Asp
				165					170					175	
Trp	Glu	Gly	Lys	Met	Phe	Pro	Ala	Leu	Gly	Val	Lys	Ile	Asp	Gly	Ala
			180					185					190		
Trp	Tyr	Tyr	Ser	Ile	His	Ala	Ser	Thr	Thr	Pro	Lys	Arg	Ala	Asn	Asn
		195					200					205			
Asn	Ala	Gly	Thr	Leu	Val	Glu	Asp	Leu	Ser	Lys	Leu	His	Glu	Thr	Ala
	210					215					220				
Ala	Phe	Glu	Gly	Asp	Trp	Ala	Ala	Met	Gly	Asp	Trp	Asn	Arg	Tyr	Pro
225					230					235					240
Ser	Glu	Asp	Ser	Asn	Ala	Tyr	Glu	Asn	Gln	Arg	Lys	His	Leu	Lys	Gly
				245					250					255	
Ala	Met	Arg	Thr	Asn	Phe	Pro	Asp	Asn	Gln	Ala	Ala	Leu	Arg	Glu	Val
			260					265					270		
Leu	Glu	Phe	Glu	Ser	Asp	Glu	Arg	Val	Ile	Trp	Gln	Gly	Ala	Arg	Thr
		275					280					285			
His	Asp	His	Gly	Ala	Glu	Leu	Asp	Tyr	Met	Val	Ala	Lys	Gly	Ala	Gly
	290					295					300				
Asn	Asp	Tyr	Lys	Ala	Ser	Arg	Ser	Thr	Ser	Lys	His	Gly	Ser	Asp	His
305					310					315					320
Tyr	Pro	Val	Phe	Phe	Gly	Ile	Gly	Asp	Asp	Ser	Asp	Thr	Cys	Met	Gly
				325					330					335	
Gly	Thr	Ala	Pro	Val	Ala	Ala	Asn	Ala	Pro	Arg	Ala	Ala	Ala	Thr	Glu
			340					345					350		
Ser	Cys	Pro	Leu	Asp	Asp	Asp	Leu	Pro	Ala	Val	Ile	Val	Ser	Met	Gly
		355					360					365			
Asp	Ser	Tyr	Ile	Ser	Gly	Glu	Gly	Gly	Arg	Trp	Gln	Gly	Asn	Ala	Asn
	370					375					380				
Thr	Ser	Ser	Gly	Gly	Asp	Ser	Trp	Gly	Thr	Asp	Arg	Ala	Ala	Asp	Gly
385					390					395					400
Thr	Glu	Val	Tyr	Glu	Lys	Asn	Ser	Glu	Gly	Ser	Asp	Ala	Cys	His	Arg
				405					410					415	
Ser	Asp	Val	Ala	Glu	Ile	Lys	Arg	Ala	Asp	Ile	Ala	Asp	Ile	Pro	Ala
			420					425					430		
Glu	Arg	Arg	Ile	Asn	Ile	Ala	Cys	Ser	Gly	Ala	Glu	Thr	Lys	His	Leu
		435					440					445			
Leu	Thr	Glu	Thr	Phe	Lys	Gly	Glu	Lys	Pro	Gln	Ile	Glu	Gln	Leu	Ala
	450					455					460				
Asp	Val	Ala	Glu	Thr	His	Arg	Val	Asp	Thr	Ile	Val	Val	Ser	Ile	Gly
465					470					475					480
Gly	Asn	Asp	Leu	Glu	Phe	Ala	Asp	Ile	Val	Ser	Gln	Cys	Ala	Thr	Ala
				485					490					495	
Phe	Met	Leu	Gly	Glu	Gly	Ala	Cys	His	Thr	Asp	Val	Asp	Asp	Thr	Leu
			500					505					510		
Asp	Ser	Arg	Leu	Gly	Asp	Val	Ser	Arg	Ser	Val	Ser	Glu	Val	Leu	Ala
		515					520					525			
Ala	Ile	Arg	Asp	Thr	Met	Ile	Glu	Ala	Gly	Gln	Asp	Asp	Thr	Ser	Tyr
	530					535					540				
Lys	Leu	Val	Leu	Gln	Ser	Tyr	Pro	Ala	Pro	Leu	Pro	Ala	Ser	Asp	Glu
545					550					555					560

Met	Arg	Tyr	Thr	Gly	Asp	His	Tyr	Asp	Arg	Tyr	Thr	Glu	Gly	Gly	Cys	
				565					570					575		
Pro	Phe	Tyr	Asp	Val	Asp	Leu	Asp	Trp	Thr	Arg	Asp	Val	Leu	Ile	Lys	
			580					585					590			
Lys	Ile	Glu	Ala	Thr	Leu	Arg	Gly	Val	Ala	Lys	Ser	Ala	Asp	Ala	Ala	
		595					600					605				
Phe	Leu	Asn	Leu	Thr	Asp	Thr	Phe	Thr	Gly	His	Glu	Leu	Cys	Ser	Lys	
	610					615					620					
His	Thr	Arg	Gln	Ala	Glu	Ser	Gly	Glu	Ser	Leu	Ala	Asn	Pro	Ile	Leu	
625					630					635					640	
Glu	His	Glu	Ala	Glu	Trp	Val	Arg	Phe	Val	Pro	Gly	Leu	Thr	Thr	Pro	
				645					650						655	
Gly	Asp	Thr	Ala	Glu	Ala	Ile	His	Pro	Asn	Ala	Phe	Gly	Gln	His	Ala	
			660					665					670			
Leu	Ser	Ser	Cys	Leu	Ser	Gln	Ala	Val	Arg	Thr	Met	Asp	Asp	Ser	Asp	
		675					680					685				
Gln	Arg	Tyr	Phe	Glu	Cys	Asp	Gly	Arg	Asp	Thr	Gly	Asn	Pro	Arg	Leu	
	690					695					700					
Val	Trp	Pro	Arg	Ser	Ser	Pro	Ile	Asp	Ala	Val	Val	Glu	Thr	Ala	Asp	
705					710					715					720	
Gly	Trp	Gln	Gly	Asp	Asp	Phe	Arg	Leu	Ala	Asp	His	Tyr	Met	Phe	Gln	
				725					730						735	
Arg	Gly	Val	Tyr	Ala	Arg	Phe	Asn	Pro	Asp	Ala	Asp	Arg	Ser	Gly	Ala	
			740					745					750			
Ile	Asp	Pro	Gly	Arg	Ile	Thr	Phe	Gly	Gln	Thr	Asp	Gly	Trp	Leu	Gly	
		755					760					765				
Glu	Val	Lys	Asp	Thr	Ser	Asn	Trp	Pro	Ser	Leu	Ser	Gly	Thr	Asp	Phe	
	770					775					780					
Val	Asp	Gly	Ile	Asp	Ala	Ala	Ala	Glu	Ala	Arg	Thr	Ser	Thr	Gly	His	
785					790					795					800	
Gln	Leu	Leu	Leu	Phe	His	Ser	Gly	Val	Glu	Asp	Asn	Gln	Tyr	Val	Arg	
				805					810						815	
Val	Glu	Met	Ala	Pro	Gly	Thr	Thr	Asp	Asp	Gln	Leu	Val	Arg	Gly	Pro	
			820					825					830			
Val	Pro	Ile	Thr	Arg	Tyr	Trp	Pro	Leu	Phe	Gln	Asp	Thr	Pro	Phe	Glu	
		835					840					845				
Trp	Gly	Val	Asp	Ala	Ala	Ala	Gly	Asp	Gln	Leu	Asn	Arg	Ala	Met	Val	
	850					855					860					
Phe	Arg	His	Gly	Tyr	Val	Gly	Leu	Val	Gln	Val	Ser	Leu	Asp	Ala	Leu	
865					870					875					880	
Ser	Asp	Glu	Trp	Leu	Val	Glu	Pro	Thr	Leu	Ile	Gly	Ser	Ala	Ile	Pro	
				885					890						895	
Ala	Leu	Glu	Gly	Thr	Pro	Phe	Glu	Thr	Gly	Val	Asp	Ala	Ala	Ile	Val	
			900					905					910			
Arg	His	Gln	Gln	Pro	Thr	Ala	Met	Trp	Val	Asp	Leu	Ile	Ser	Gly	Thr	
		915					920					925				
Gln	Val	Val	Thr	Leu	Leu	Val	Asp	Leu	Asp	Asp	Leu	Ser	Lys	Ser	Thr	
	930					935					940					
Tyr	Met	Thr	Ser	Ile	Val	Glu	Ile	Thr	Thr	Met	Trp	Pro	Ser	Leu	Arg	
945					950					955					960	
Gly	Ser	Ile	Phe	Asp	Trp	Thr	Gly	Gly	Glu	Ala	Trp	Lys	Pro	Glu	Lys	
				965					970						975	
Met	Gln	Ile	Lys	Thr	Gly	Ala	Gly	Asp	Pro	Tyr	Asp	Met	Asp	Ala	Asp	
			980					985					990			
Asp	Arg	Gln	Ala	Lys	Pro	Ala	Val	Ser	Gly	Ser	His	Glu	Gln	Cys	Arg	
		995					1000					1005				
Pro	Glu	Gly	Leu	Ala	Gln	Thr	Pro	Gly	Val	Asn	Thr	Pro	Tyr	Cys	Glu	
	1010					1015					1020					
Val	Tyr	Asp	Thr	Asp	Gly	Arg	Glu	Trp	Leu	Gly	Asn	Gly	His	Asp		
1025					1030					1035				1040		
Arg	Arg	Val	Ile	Gly	Tyr	Phe	Thr	Gly	Trp	Arg	Thr	Gly	Glu	Asn	Asp	
				1045					1050					1055		
Gln	Pro	Arg	Tyr	Leu	Val	Pro	Asn	Ile	Pro	Trp	Ser	Lys	Val	Thr	His	
			1060					1065					1070			

Ile Asn Tyr Ala Phe Ala Lys Val Asp Asp Asp Asn Lys Ile Gln Arg
1075 1080 1085

<210> 73
<211> 753
<212> DNA
<213> Unknown

<220>
<223> Obtained from an environmental sample.

<400> 73
atgggaaacg gtgcagcagt tggttccaat gataatggta gagaagaaag tgtttacgta 60
ctttctgtga tgcgctgtaa tgtttattat ttacagaagt gtgaagggtg ggcacgcgct 120
gatagcgtga ttagagaaat taatagccaa actcaacctt taggatatga gattgtagca 180
gattctattc gtgatggtca tattggttct tttgcctgta agatggcagt ctttagaaat 240
aatggtaatg gcaatttgtt ttttagcgatc aaaggacag atatgaataa tatcaatgac 300
ttggtgaatg atctaaccat gatattagga ggcattggtt ctggtgctgc aatccaacca 360
acgattaaca tggcacaaga actcatcgac caatatggag tgaatttgat tactggtcac 420
tcccttgagg gctacatgac tgaaatcatc gctaccaatc gtggactacc aggtattgca 480
ttttgcgac caggttcaaa tgggtccaatt gtaaaattag gtggacaaga gacacctggc 540
tttcacaatg ttaactttga acatgatcca gcaggtaacg ttatgactgg gggtttatact 600
catgtccaat ggagtattta tgtaggatgt gatggtatga ctcatggtat tgaaaatatg 660
gtgaattatt ttaaagataa aagagattta accaatcgca atattcaagg aagaagtga 720
agtcataata cgggttatta ttacccaaaa taa 753

<210> 74
<211> 250
<212> PRT
<213> Unknown

<220>
<223> Obtained from an environmental sample.

<400> 74
Met Gly Asn Gly Ala Ala Val Gly Ser Asn Asp Asn Gly Arg Glu Glu
1 5 10 15
Ser Val Tyr Val Leu Ser Val Ile Ala Cys Asn Val Tyr Tyr Leu Gln
20 25 30
Lys Cys Glu Gly Gly Ala Ser Arg Asp Ser Val Ile Arg Glu Ile Asn
35 40 45
Ser Gln Thr Gln Pro Leu Gly Tyr Glu Ile Val Ala Asp Ser Ile Arg
50 55 60
Asp Gly His Ile Gly Ser Phe Ala Cys Lys Met Ala Val Phe Arg Asn
65 70 75 80
Asn Gly Asn Gly Asn Cys Val Leu Ala Ile Lys Gly Thr Asp Met Asn
85 90 95
Asn Ile Asn Asp Leu Val Asn Asp Leu Thr Met Ile Leu Gly Gly Ile
100 105 110
Gly Ser Val Ala Ala Ile Gln Pro Thr Ile Asn Met Ala Gln Glu Leu
115 120 125
Ile Asp Gln Tyr Gly Val Asn Leu Ile Thr Gly His Ser Leu Gly Gly
130 135 140
Tyr Met Thr Glu Ile Ile Ala Thr Asn Arg Gly Leu Pro Gly Ile Ala
145 150 155 160
Phe Cys Ala Pro Gly Ser Asn Gly Pro Ile Val Lys Leu Gly Gly Gln
165 170 175
Glu Thr Pro Gly Phe His Asn Val Asn Phe Glu His Asp Pro Ala Gly
180 185 190
Asn Val Met Thr Gly Val Tyr Thr His Val Gln Trp Ser Ile Tyr Val
195 200 205
Gly Cys Asp Gly Met Thr His Gly Ile Glu Asn Met Val Asn Tyr Phe
210 215 220
Lys Asp Lys Arg Asp Leu Thr Asn Arg Asn Ile Gln Gly Arg Ser Glu

Gly Ser Ala Phe Ser Trp Asp Val Asn Glu Gln Phe Phe Asn Ala Ser
 145 150 155 160
 Asn Trp Lys Asp Lys Glu Ile Lys Phe Tyr Asn Leu Ile Gly Asp Arg
 165 170 175
 Val Lys Thr Asp Phe Phe Lys Ser Lys Ile Phe Pro Ala Ala Phe Glu
 180 185 190
 Ser Gly Ser Asp Met Val Ile Arg Val Ala Ala Gly Asn Gln Asn Phe
 195 200 205
 Val Arg Tyr Arg Tyr Asp Ser Gln Lys Asp Ser Phe Thr Val Val Asn
 210 215 220
 Glu Leu Lys Gly Ile Ala Phe Gly Ala Leu Tyr Gln Tyr Thr His Ser
 225 230 235 240
 Asn Asp Asp Tyr Gly Ile Leu Asn Ser Ile Lys Lys Ser Ser Thr Leu
 245 250 255
 Glu Asn His Gln Ala Leu Arg Leu Ile Val Glu Cys Leu Lys Val Ser
 260 265 270
 Gly Asp Lys Glu Tyr Glu Asn Val Ala Gln Leu Ala Ala Thr
 275 280 285
 Lys Glu Thr Arg Glu Lys Arg Gln Gly Tyr Ala Gln Leu Asp Phe Arg
 290 295 300
 Phe Arg Asp Asp Glu Gly Phe Pro Ile Asp Asp Tyr Val Val Glu Leu
 305 310 315 320
 Gly Val Met Val Asn Gly Lys Pro Lys Pro Ser Lys Thr Val Asp Asp
 325 330 335
 Val His Lys Asn Lys Ile Thr Pro Asn His Leu Thr Val Phe Ile Asn
 340 345 350
 Leu Lys Glu Leu Glu Pro Asn Leu Lys Tyr Phe Ile Asn Ile Lys Ser
 355 360 365
 Ile Ser Glu Ser Ser Met Tyr Ser Tyr Asp Pro Ala Val Arg Thr Ile
 370 375 380
 Glu Leu Ala Ser Asn Glu Ile Thr Lys Ile Ile Arg Glu Asp His Thr
 385 390 395 400
 Thr Gln Ile Asp Val Ile Leu Ser Arg Thr Pro Ala Lys Asn Leu Phe
 405 410 415
 Met Phe His Arg Gly Asp Asp Glu Asp Leu His Val Thr Trp Ser Arg
 420 425 430
 Tyr Gly Glu Thr Lys Ser Thr Lys Gln Gly Ile Lys
 435 440

<210> 77
 <211> 1026
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 77
 atggcttatac actttaaaaa cttggtcttc gaaggcgggtg gcgtgaaagg catcgcttac 60
 gtgggtgctc ttgaagtact tgagagagaa ggcattctga aagacatcaa acgcgtggct 120
 ggtacttcgg ctggagcgct ggttgccgtc ttaatcagtt tgggctatac cgcccaagaa 180
 ttgaaggaca tcctatggaa aatcaatttc caaaactttt tggacagctc gtggggcttg 240
 gtgcgcaaca cggcacgttt cattgaggat tacggttggt acaaagggtga gtttttccgc 300
 gaattgggtt cggtgtacat caaggaaaaa acgggcaata gtgaaagcac tttcaaggat 360
 ctggccaaat caaaagattt ccgtggcctc agccttattg gtagcgatct gtccacagga 420
 tactcaaagg tgttcagcaa cgaattcacc ccaaacgtca aagtagctga tgcagccgc 480
 atctccatgt cgataccctt gtttttcaaa gccgttcgcg gtgtaaacgg tgatggacac 540
 atttacgtcg atggtggact gttagacaac tatgccatca aggtgttcga ccgcgtcaat 600
 tacgtaaaga ataagaacaa cgtacggtac accgagtatt atgaaaagac caacaagtcg 660
 ctgaaaagca aaaacaagct gaccaacgaa tacgtctaca ataaagaaac tttgggcttc 720
 cgattggatg ccaaagaaca gattgagatg tttctcgacc atagtataga accaaaggca 780
 aaggacattg actcactatt ctcttacacg aaggcttttg tcaccaccct catcgacttt 840
 caaaacaatg tacatttgca tagtgacgac tggcaacgca cagtctatat cgactcttta 900
 ggtatcagtt ccaactgactt cggcatctct gactctaaaa aacagaaact cgtcgattca 960

ggcattttgc atacgcaaaa atacctggat tggataaca acgacgaaga gaaagccaac 1020
 aaatag 1026

<210> 78
 <211> 341
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 78
 Met Ala Tyr His Phe Lys Asn Leu Val Phe Glu Gly Gly Gly Val Lys
 1 5 10 15
 Gly Ile Ala Tyr Val Gly Ala Leu Glu Val Leu Glu Arg Glu Gly Ile
 20 25 30
 Leu Lys Asp Ile Lys Arg Val Ala Gly Thr Ser Ala Gly Ala Leu Val
 35 40 45
 Ala Val Leu Ile Ser Leu Gly Tyr Thr Ala Gln Glu Leu Lys Asp Ile
 50 55 60
 Leu Trp Lys Ile Asn Phe Gln Asn Phe Leu Asp Ser Ser Trp Gly Leu
 65 70 75 80
 Val Arg Asn Thr Ala Arg Phe Ile Glu Asp Tyr Gly Trp Tyr Lys Gly
 85 90 95
 Glu Phe Phe Arg Glu Leu Val Ala Gly Tyr Ile Lys Glu Lys Thr Gly
 100 105 110
 Asn Ser Glu Ser Thr Phe Lys Asp Leu Ala Lys Ser Lys Asp Phe Arg
 115 120 125
 Gly Leu Ser Leu Ile Gly Ser Asp Leu Ser Thr Gly Tyr Ser Lys Val
 130 135 140
 Phe Ser Asn Glu Phe Thr Pro Asn Val Lys Val Ala Asp Ala Ala Arg
 145 150 155 160
 Ile Ser Met Ser Ile Pro Leu Phe Phe Lys Ala Val Arg Gly Val Asn
 165 170 175
 Gly Asp Gly His Ile Tyr Val Asp Gly Gly Leu Leu Asp Asn Tyr Ala
 180 185 190
 Ile Lys Val Phe Asp Arg Val Asn Tyr Val Lys Asn Lys Asn Asn Val
 195 200 205
 Arg Tyr Thr Glu Tyr Tyr Glu Lys Thr Asn Lys Ser Leu Lys Ser Lys
 210 215 220
 Asn Lys Leu Thr Asn Glu Tyr Val Tyr Asn Lys Glu Thr Leu Gly Phe
 225 230 235 240
 Arg Leu Asp Ala Lys Glu Gln Ile Glu Met Phe Leu Asp His Ser Ile
 245 250 255
 Glu Pro Lys Ala Lys Asp Ile Asp Ser Leu Phe Ser Tyr Thr Lys Ala
 260 265 270
 Leu Val Thr Thr Leu Ile Asp Phe Gln Asn Asn Val His Leu His Ser
 275 280 285
 Asp Asp Trp Gln Arg Thr Val Tyr Ile Asp Ser Leu Gly Ile Ser Ser
 290 295 300
 Thr Asp Phe Gly Ile Ser Asp Ser Lys Lys Gln Lys Leu Val Asp Ser
 305 310 315 320
 Gly Ile Leu His Thr Gln Lys Tyr Leu Asp Trp Tyr Asn Asn Asp Glu
 325 330 335
 Glu Lys Ala Asn Lys
 340

<210> 79
 <211> 1701
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

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<400> 79
atgagaaatt tcagcaaggg attgaccagt attttgctta gcatagcgac atccaccagt      60
gcgatggcct ttaccagat cggggccggc ggagcgattc cgatgggcca tgagtggcta      120
acccgccgct cggcgctgga actgctgaat gccgacaatc tggtcggcaa tgaccgggcc      180
gaccacgct tgggctggag cgaaggtctc gccacaatc tcgatctctc gaatgccag      240
aacgaagtgc agcgcataa gagcattacc aagagccacg ccctgtatga gccgcgttac      300
gatgacgttt tcgccgccat cgtcggcgag cgctgggttg ataccgccg tttcaacgtg      360
gccaaggcca ccgtcggcaa gatcgattgc ttcagcgccg tcgcgcaaga gcccgccgat      420
gtgcaacaag accatttcat gcgcggttat gacgacgtgg gtggacaagg gggcgtgaac      480
gctgcccgcc gcgcgcagca gcgctttatc aatcacttcg tcaacgcagc catggccgaa      540
gagaagagca tcaaggcatg ggatggcggc ggttattctt cgctggaaaa agtcagccac      600
aactacttct tgtttggccg cgcggttcat ttgttccagg attctttcag ccccgaaacac      660
accgtgcgcc tgcctgaaga caattacgtc aaagtccgtc aggtcaaggc gtatctctgc      720
tctgaagggtg ccgaacagca tacgcacaac acgcaagatg ccatcaactt caccagcggc      780
gatgtcatct ggaaacagaa caccgcgtctg gatgcaggct ggagcaccta caaggccagc      840
aactgaagca cgggtggcatt ggttgccctc gaagccagca aagatttgtg ggccgccttt      900
attcgcacca tggcggtttc ccgcgaggag cgctcgcccg tcgccgaaca ggaagcgag      960
gctctcgtca atcactgggt gtcgttcgag gaacaggaaa tgctgaactg gtacgaagaa     1020
gaagagcacc gcgatcatac gtacgtcaag gaaccgggcc agagcggccc aggttcgtcg     1080
ttattcgatt gcatggttgg tctgggtgtg gcctcgggca gtcaggcgca acgggtggcg     1140
gaactcgatc agcaacgccg ccaatgtttg ttcaacgtca aggccgctac tggctatggc     1200
gatctgaatg atccacacat ggatattccg tacaactggc aatgggtgtc gtcgacgcaa     1260
tggaaaatcc ctgcggccga ctggaaaatc ccgcagctgc ccgccgattc agggaaatca     1320
gtcgtcatca agaattcgat caatggcgat ccgctgggtg cacctgccgg gctcaagcac     1380
aacaccgatg tttacgggtgc accgggtgag gcgattgaat tcattttcgt cggtgatttc     1440
aaccatgagc cgtatttccg caccaaggac aacgcggatc tgttcctgag ttacagcgcg     1500
gtatcgggga agggcttgct gtacaacacg cccaaccagg ccggttatcg tgttcagcct     1560
tatggtgtgc tgtggacgat tgagaatacc tactggaatg atttcctctg gtacaacagc     1620
tcgaacgacc gcatctatgt cagcggcacc ggcgctgcca acaagtcaca ctcccagtgg     1680
attattgacg gcttgacgtg a                                     1701

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<210> 80
<211> 566
<212> PRT
<213> Unknown

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<220>
<223> Obtained from an environmental sample.

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<221> SIGNAL
<222> (1)...(23)

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<400> 80
Met Arg Asn Phe Ser Lys Gly Leu Thr Ser Ile Leu Leu Ser Ile Ala
 1           5           10           15
Thr Ser Thr Ser Ala Met Ala Phe Thr Gln Ile Gly Ala Gly Gly Ala
          20           25           30
Ile Pro Met Gly His Glu Trp Leu Thr Arg Arg Ser Ala Leu Glu Leu
          35           40           45
Leu Asn Ala Asp Asn Leu Val Gly Asn Asp Pro Ala Asp Pro Arg Leu
          50           55           60
Gly Trp Ser Glu Gly Leu Ala Asn Asn Leu Asp Leu Ser Asn Ala Gln
65           70           75           80
Asn Glu Val Gln Arg Ile Lys Ser Ile Thr Lys Ser His Ala Leu Tyr
          85           90           95
Glu Pro Arg Tyr Asp Asp Val Phe Ala Ala Ile Val Gly Glu Arg Trp
          100          105          110
Val Asp Thr Ala Gly Phe Asn Val Ala Lys Ala Thr Val Gly Lys Ile
          115          120          125
Asp Cys Phe Ser Ala Val Ala Gln Glu Pro Ala Asp Val Gln Gln Asp
          130          135          140
His Phe Met Arg Arg Tyr Asp Asp Val Gly Gly Gln Gly Gly Val Asn
145          150          155          160

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Ala	Ala	Arg	Arg	Ala	Gln	Gln	Arg	Phe	Ile	Asn	His	Phe	Val	Asn	Ala		
				165					170					175			
Ala	Met	Ala	Glu	Glu	Lys	Ser	Ile	Lys	Ala	Trp	Asp	Gly	Gly	Gly	Tyr		
			180					185					190				
Ser	Ser	Leu	Glu	Lys	Val	Ser	His	Asn	Tyr	Phe	Leu	Phe	Gly	Arg	Ala		
		195					200					205					
Val	His	Leu	Phe	Gln	Asp	Ser	Phe	Ser	Pro	Glu	His	Thr	Val	Arg	Leu		
	210					215					220						
Pro	Glu	Asp	Asn	Tyr	Val	Lys	Val	Arg	Gln	Val	Lys	Ala	Tyr	Leu	Cys		
225					230					235					240		
Ser	Glu	Gly	Ala	Glu	Gln	His	Thr	His	Asn	Thr	Gln	Asp	Ala	Ile	Asn		
			245						250					255			
Phe	Thr	Ser	Gly	Asp	Val	Ile	Trp	Lys	Gln	Asn	Thr	Arg	Leu	Asp	Ala		
			260					265					270				
Gly	Trp	Ser	Thr	Tyr	Lys	Ala	Ser	Asn	Met	Lys	Pro	Val	Ala	Leu	Val		
		275					280					285					
Ala	Leu	Glu	Ala	Ser	Lys	Asp	Leu	Trp	Ala	Ala	Phe	Ile	Arg	Thr	Met		
	290					295					300						
Ala	Val	Ser	Arg	Glu	Glu	Arg	Arg	Ala	Val	Ala	Glu	Gln	Glu	Ala	Gln		
305					310					315					320		
Ala	Leu	Val	Asn	His	Trp	Leu	Ser	Phe	Asp	Glu	Gln	Glu	Met	Leu	Asn		
			325						330					335			
Trp	Tyr	Glu	Glu	Glu	Glu	His	Arg	Asp	His	Thr	Tyr	Val	Lys	Glu	Pro		
		340						345					350				
Gly	Gln	Ser	Gly	Pro	Gly	Ser	Ser	Leu	Phe	Asp	Cys	Met	Val	Gly	Leu		
		355					360					365					
Gly	Val	Ala	Ser	Gly	Ser	Gln	Ala	Gln	Arg	Val	Ala	Glu	Leu	Asp	Gln		
	370					375					380						
Gln	Arg	Arg	Gln	Cys	Leu	Phe	Asn	Val	Lys	Ala	Ala	Thr	Gly	Tyr	Gly		
385					390					395					400		
Asp	Leu	Asn	Asp	Pro	His	Met	Asp	Ile	Pro	Tyr	Asn	Trp	Gln	Trp	Val		
			405					410						415			
Ser	Ser	Thr	Gln	Trp	Lys	Ile	Pro	Ala	Ala	Asp	Trp	Lys	Ile	Pro	Gln		
		420						425					430				
Leu	Pro	Ala	Asp	Ser	Gly	Lys	Ser	Val	Val	Ile	Lys	Asn	Ser	Ile	Asn		
		435					440					445					
Gly	Asp	Pro	Leu	Val	Ala	Pro	Ala	Gly	Leu	Lys	His	Asn	Thr	Asp	Val		
	450					455					460						
Tyr	Gly	Ala	Pro	Gly	Glu	Ala	Ile	Glu	Phe	Ile	Phe	Val	Gly	Asp	Phe		
465					470					475					480		
Asn	His	Glu	Ala	Tyr	Phe	Arg	Thr	Lys	Asp	Asn	Ala	Asp	Leu	Phe	Leu		
			485						490					495			
Ser	Tyr	Ser	Ala	Val	Ser	Gly	Lys	Gly	Leu	Leu	Tyr	Asn	Thr	Pro	Asn		
		500						505					510				
Gln	Ala	Gly	Tyr	Arg	Val	Gln	Pro	Tyr	Gly	Val	Leu	Trp	Thr	Ile	Glu		
		515					520					525					
Asn	Thr	Tyr	Trp	Asn	Asp	Phe	Leu	Trp	Tyr	Asn	Ser	Ser	Asn	Asp	Arg		
	530					535					540						
Ile	Tyr	Val	Ser	Gly	Thr	Gly	Ala	Ala	Asn	Lys	Ser	His	Ser	Gln	Trp		
545					550					555					560		
Ile	Ile	Asp	Gly	Leu	Gln												
				565													

<210> 81
 <211> 1422
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 81
 atgaaaaaga aattatgtac aatggctctt gtaacagcaa tatcttctgg tgttggttacg 60
 attccaacag aagcacaagc ttgtggaata ggcgaagtaa tgaaacagga gaaccaagag 120

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cacaaacgtg tgaaaagatg gtctgcggag catccgcatac attcaaataa aagtacacat 180
ttatggattg cacgaaatgc gattcaaat atgagtcgta atcaagataa gacggttcaa 240
gaaaatgaat tacaattttt aaatactcct gaataataagg agttatttga aagagggtctt 300
tatgatgctg attaccttga tgaattttaac gatggaggta caggtacaat cggcattgat 360
gggctaatta gaggagggtg gaaatctcat ttttacgatc ccgatacaag aaagaactat 420
aaaggggaag aagaaccaac agctctttca caaggagata aatattttta attagcaggt 480
gaatacttta agaaggcgga ccaaaaaacaa gctttttatt atttaggtgt tgcaacgcat 540
tactttacag atgctactca accaatgcat gctgctaatt ttacagccgt cgacacgagt 600
gcttttaaagt ttcatagcgc ttttgaaaat tatgtgacga caattcagac acagtatgaa 660
gtatctgatg gtgaggcggt atataattta gtgaattcta atgatccaaa acagtggatc 720
catgaaacag cgagactcgc aaaagtggaa atcggaaca ttaccaatga cgagattaaa 780
tctcactata ataaaggaaa caatgctctt tggcaacaag aagttatgcc agctgtccag 840
aggagtttag agaacgcaca aagaacacg gcgggattta ttcatttatg gtttaaaaca 900
tttgttggca atactgccgc tgaagaaatt gaaaatactg tagtgaaaga ttctaaagga 960
gaagcaatac aagataataa aaaatacttc gtagtgccaa gtgagtttct aaatagaggt 1020
ttgacctttg aagtatatgc aaggaatgac tatgcactat tatctaatta cgtagatgat 1080
agtaaagttc atggtacgcc agttcagttt gtatttgata aagataataa cggtatcctt 1140
catcgaggag aaagtgtact gctgaaaatg acgcaatcta actatgataa ttacgtatgt 1200
ctaaactact ctaacttgac aaactgggta catcttgccg aacaaaaaac aaatactgca 1260
cagtttaaaag tgtatccaaa tccgaataac ccactgaat attacctata tacagatgga 1320
taccagtaa attatcaaga aaatggtaac ggaaagagct ggattgtgtt aggaaagaaa 1380
acagatacac caaaagcttg gaaatttata caggctgaat ag 1422

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<210> 82
 <211> 473
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(25)

<400> 82

Met	Lys	Lys	Lys	Leu	Cys	Thr	Met	Ala	Leu	Val	Thr	Ala	Ile	Ser	Ser
1				5					10				15		
Gly	Val	Val	Thr	Ile	Pro	Thr	Glu	Ala	Gln	Ala	Cys	Gly	Ile	Gly	Glu
			20					25					30		
Val	Met	Lys	Gln	Glu	Asn	Gln	Glu	His	Lys	Arg	Val	Lys	Arg	Trp	Ser
		35					40					45			
Ala	Glu	His	Pro	His	His	Ser	Asn	Glu	Ser	Thr	His	Leu	Trp	Ile	Ala
	50					55					60				
Arg	Asn	Ala	Ile	Gln	Ile	Met	Ser	Arg	Asn	Gln	Asp	Lys	Thr	Val	Gln
65					70				75					80	
Glu	Asn	Glu	Leu	Gln	Phe	Leu	Asn	Thr	Pro	Glu	Tyr	Lys	Glu	Leu	Phe
			85					90					95		
Glu	Arg	Gly	Leu	Tyr	Asp	Ala	Asp	Tyr	Leu	Asp	Glu	Phe	Asn	Asp	Gly
			100					105					110		
Gly	Thr	Gly	Thr	Ile	Gly	Ile	Asp	Gly	Leu	Ile	Arg	Gly	Gly	Trp	Lys
		115					120					125			
Ser	His	Phe	Tyr	Asp	Pro	Asp	Thr	Arg	Lys	Asn	Tyr	Lys	Gly	Glu	Glu
	130					135					140				
Glu	Pro	Thr	Ala	Leu	Ser	Gln	Gly	Asp	Lys	Tyr	Phe	Lys	Leu	Ala	Gly
145					150				155					160	
Glu	Tyr	Phe	Lys	Lys	Gly	Asp	Gln	Lys	Gln	Ala	Phe	Tyr	Tyr	Leu	Gly
			165					170						175	
Val	Ala	Thr	His	Tyr	Phe	Thr	Asp	Ala	Thr	Gln	Pro	Met	His	Ala	Ala
			180					185					190		
Asn	Phe	Thr	Ala	Val	Asp	Thr	Ser	Ala	Leu	Lys	Phe	His	Ser	Ala	Phe
	195						200					205			
Glu	Asn	Tyr	Val	Thr	Thr	Ile	Gln	Thr	Gln	Tyr	Glu	Val	Ser	Asp	Gly
	210					215					220				
Glu	Gly	Val	Tyr	Asn	Leu	Val	Asn	Ser	Asn	Asp	Pro	Lys	Gln	Trp	Ile

225		230		235		240									
His	Glu	Thr	Ala	Arg	Leu	Ala	Lys	Val	Glu	Ile	Gly	Asn	Ile	Thr	Asn
				245					250					255	
Asp	Glu	Ile	Lys	Ser	His	Tyr	Asn	Lys	Gly	Asn	Asn	Ala	Leu	Trp	Gln
			260					265					270		
Gln	Glu	Val	Met	Pro	Ala	Val	Gln	Arg	Ser	Leu	Glu	Asn	Ala	Gln	Arg
		275					280					285			
Asn	Thr	Ala	Gly	Phe	Ile	His	Leu	Trp	Phe	Lys	Thr	Phe	Val	Gly	Asn
	290					295					300				
Thr	Ala	Ala	Glu	Glu	Ile	Glu	Asn	Thr	Val	Val	Lys	Asp	Ser	Lys	Gly
305					310					315					320
Glu	Ala	Ile	Gln	Asp	Asn	Lys	Lys	Tyr	Phe	Val	Val	Pro	Ser	Glu	Phe
			325						330					335	
Leu	Asn	Arg	Gly	Leu	Thr	Phe	Glu	Val	Tyr	Ala	Arg	Asn	Asp	Tyr	Ala
			340					345					350		
Leu	Leu	Ser	Asn	Tyr	Val	Asp	Asp	Ser	Lys	Val	His	Gly	Thr	Pro	Val
		355				360						365			
Gln	Phe	Val	Phe	Asp	Lys	Asp	Asn	Asn	Gly	Ile	Leu	His	Arg	Gly	Glu
	370					375					380				
Ser	Val	Leu	Leu	Lys	Met	Thr	Gln	Ser	Asn	Tyr	Asp	Asn	Tyr	Val	Phe
385					390					395					400
Leu	Asn	Tyr	Ser	Asn	Leu	Thr	Asn	Trp	Val	His	Leu	Ala	Gln	Gln	Lys
			405						410					415	
Thr	Asn	Thr	Ala	Gln	Phe	Lys	Val	Tyr	Pro	Asn	Pro	Asn	Asn	Pro	Ser
			420					425					430		
Glu	Tyr	Tyr	Leu	Tyr	Thr	Asp	Gly	Tyr	Pro	Val	Asn	Tyr	Gln	Glu	Asn
		435					440					445			
Gly	Asn	Gly	Lys	Ser	Trp	Ile	Val	Leu	Gly	Lys	Lys	Thr	Asp	Thr	Pro
	450					455					460				
Lys	Ala	Trp	Lys	Phe	Ile	Gln	Ala	Glu							
465					470										

<210> 83

<211> 1290

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 83

atgaaaaaga	tagtgattta	ttcattttgta	gcagggggtta	tgacatcagg	cggcgtatttt	60
gccgccagtg	acaatatattgt	ggagacgtcg	accccaccac	agcatcaggc	cccaagcaga	120
caggacaggg	cattatttcgc	gggtgatata	acaacctata	taaaatgtgt	ctacaaagtg	180
gatggccagg	atgacagcaa	tccatcctca	tcttggttat	gggcgaaagt	gggtagcaac	240
tatgcgaagc	tgaaggggta	ttggtataat	tcaatgccgc	tggaacaacat	gttttacact	300
gaagtaccct	atgcagaggt	gatggacttg	tgtaatagca	ccctgaaggc	ggtaggtgcc	360
aactccactc	ttgttattcc	atatgcatcg	gattacaccc	tgctctatta	ctatgtgatt	420
tggaatcaag	gggctaacca	gccggttatc	aacgttggcg	gcagagagct	tgaccgtatg	480
gtggtctttg	gtgacagctt	gagcgatacc	gtcaatgtct	ataacggctc	gtacgggtacc	540
gtgccgaata	gtacctcctg	gttattgggc	catttctcta	acggaaagct	ttggcatgaa	600
tacctttcca	cggatttgaa	tctgcctagc	tatgtgtggg	cgactggcaa	tgcggagagt	660
ggagagaaac	ccttctttta	cggattcagt	aagcaggtgg	attctttcag	ggattatcac	720
gctcgacta	aaggctacga	tattagcaag	acgttgttta	ccgttctggt	tgggtgaaat	780
gattttataa	cgggggggaa	aagcgccgat	gaggtcattg	agcaatatac	ggtgtcattg	840
aactacttgg	ctcaactagg	ggcgaagcag	gttgcaattt	tccgcttgcc	agatttttca	900
gtgataccca	gcgtttcaac	gtggacagag	gctgataagg	acaaactgag	agagaatagt	960
gttcagttta	atgaccaagc	cgagaagctg	atcgctaacc	taaacgcggc	acatccccaa	1020
acgacgtttt	atacgtctgag	gttggatgac	gcttttaagc	aggtgttgga	aaacagcgac	1080
caatacggct	ttgttaataa	gactgatacc	tgccctggata	tttcccaagg	cggatacaac	1140
tatgccattg	gggcccgcgc	gaaaacggca	tgtaagagca	gcaatgcggc	gtttgtattc	1200
tgggacaata	tgcattccgac	caccaaaaca	cacggattgt	tggccgatct	tttaaaagat	1260
gatgtggtac	gcggcctcgc	tgcgccatga				1290

<210> 84
 <211> 429
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(22)

<400> 84
 Met Lys Lys Ile Val Ile Tyr Ser Phe Val Ala Gly Val Met Thr Ser
 1 5 10 15
 Gly Gly Val Phe Ala Ala Ser Asp Asn Ile Val Glu Thr Ser Thr Pro
 20 25 30
 Pro Gln His Gln Ala Pro Ser Arg Gln Asp Arg Ala Leu Phe Ala Gly
 35 40 45
 Asp Thr Thr Thr Tyr Ile Lys Cys Val Tyr Lys Val Asp Gly Gln Asp
 50 55 60
 Asp Ser Asn Pro Ser Ser Ser Trp Leu Trp Ala Lys Val Gly Ser Asn
 65 70 75 80
 Tyr Ala Lys Leu Lys Gly Tyr Trp Tyr Asn Ser Met Pro Leu Ala Asn
 85 90 95
 Met Phe Tyr Thr Glu Val Pro Tyr Ala Glu Val Met Asp Leu Cys Asn
 100 105 110
 Ser Thr Leu Lys Ala Val Gly Ala Asn Ser Thr Leu Val Ile Pro Tyr
 115 120 125
 Ala Ser Asp Tyr Thr Leu Ser Tyr Tyr Tyr Val Ile Trp Asn Gln Gly
 130 135 140
 Ala Asn Gln Pro Val Ile Asn Val Gly Gly Arg Glu Leu Asp Arg Met
 145 150 155 160
 Val Val Phe Gly Asp Ser Leu Ser Asp Thr Val Asn Val Tyr Asn Gly
 165 170 175
 Ser Tyr Gly Thr Val Pro Asn Ser Thr Ser Trp Leu Leu Gly His Phe
 180 185 190
 Ser Asn Gly Lys Leu Trp His Glu Tyr Leu Ser Thr Val Leu Asn Leu
 195 200 205
 Pro Ser Tyr Val Trp Ala Thr Gly Asn Ala Glu Ser Gly Glu Lys Pro
 210 215 220
 Phe Phe Asn Gly Phe Ser Lys Gln Val Asp Ser Phe Arg Asp Tyr His
 225 230 235 240
 Ala Arg Thr Lys Gly Tyr Asp Ile Ser Lys Thr Leu Phe Thr Val Leu
 245 250 255
 Phe Gly Gly Asn Asp Phe Ile Thr Gly Gly Lys Ser Ala Asp Glu Val
 260 265 270
 Ile Glu Gln Tyr Thr Val Ser Leu Asn Tyr Leu Ala Gln Leu Gly Ala
 275 280 285
 Lys Gln Val Ala Ile Phe Arg Leu Pro Asp Phe Ser Val Ile Pro Ser
 290 295 300
 Val Ser Thr Trp Thr Glu Ala Asp Lys Asp Lys Leu Arg Glu Asn Ser
 305 310 315 320
 Val Gln Phe Asn Asp Gln Ala Glu Lys Leu Ile Ala Lys Leu Asn Ala
 325 330 335
 Ala His Pro Gln Thr Thr Phe Tyr Thr Leu Arg Leu Asp Asp Ala Phe
 340 345 350
 Lys Gln Val Leu Glu Asn Ser Asp Gln Tyr Gly Phe Val Asn Lys Thr
 355 360 365
 Asp Thr Cys Leu Asp Ile Ser Gln Gly Gly Tyr Asn Tyr Ala Ile Gly
 370 375 380
 Ala Arg Ala Lys Thr Ala Cys Lys Ser Ser Asn Ala Ala Phe Val Phe
 385 390 395 400
 Trp Asp Asn Met His Pro Thr Thr Lys Thr His Gly Leu Leu Ala Asp
 405 410 415

Leu Leu Lys Asp Asp Val Val Arg Gly Leu Ala Ala Pro
 420 425

<210> 85
 <211> 1038
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 85
 atgacaacac aathtagaaa cttgatattt gaaggcggcg gtgtaaaagg tgttgcttac 60
 attggcgcca tgcagattct tgaaaatcgt ggcgtgttgc aagatattcg ccgagtcgga 120
 ggggtgcagtg cgggtgctgat taacgcgctg atttttgctg taggttacac ggtccgtgaa 180
 caaaaagaga tcttacaagc caccgatattt aaccagttta tggataactc ttgggggggtt 240
 attcgtgata ttgcagagct tgctcgagac tttggctgga ataagggtga tttcttttagt 300
 agctggatag gtgatttgat tcatcgtcgt ttggggaatc gccgagcgac gttcaaagat 360
 ctgcaaaagg ccaagcttcc tgatctttat gtcatcggtg ctaatctgtc tacagggttt 420
 gcagaggtgt tttctgccga aagacacccc gatatggagc tggcgacagc ggtgcgtatc 480
 tccatgtcga taccgctgtt ctttgcggcc gtgcgtcacg gtgatcgaca agatgtgtat 540
 gtcgatgggg gtgttcaact taactatccg attaaactgt ttgatcgga gcgttacatt 600
 gatttggcca aagatcccgg tgccgttcgg cgaacgggtt attacaacaa agaaaacgct 660
 cgcttttcagc ttgatcggcc gggccatagc ccctatgttt acaatcgcca gaccttgggt 720
 ttgcgactgg atagtcgcga ggagataggg ctctttcgtt atgacgaacc cctcaagggc 780
 aaaccatta agtccttcac tgactacgct cgacaacttt tcggtgcgtt gatgaatgca 840
 caggaaaaga ttcacttaca tggcgatgat tggcaacgca cgatctatat cgatacattg 900
 gatgtgggta cgacggactt caatctttct gatgcaacta agcaagcact gattgagcaa 960
 ggaattaacg gcaccgaaaa ttatttcgag tggtttgata atccgtaga gaagcctgtg 1020
 aatagagtgg agtcatag 1038

<210> 86
 <211> 345
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 86
 Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys
 1 5 10 15
 Gly Val Ala Tyr Ile Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val
 20 25 30
 Leu Gln Asp Ile Arg Arg Val Gly Cys Ser Ala Gly Ala Ile Asn
 35 40 45
 Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile
 50 55 60
 Leu Gln Ala Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val
 65 70 75 80
 Ile Arg Asp Ile Arg Arg Leu Ala Arg Asp Phe Gly Trp Asn Lys Gly
 85 90 95
 Asp Phe Phe Ser Ser Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly
 100 105 110
 Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp
 115 120 125
 Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ala Glu Val Phe
 130 135 140
 Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile
 145 150 155 160
 Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Val Arg His Gly Asp Arg
 165 170 175
 Gln Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Ile Lys
 180 185 190

Leu Phe Asp Arg Glu Arg Tyr Ile Asp Leu Ala Lys Asp Pro Gly Ala
 195 200 205
 Val Arg Arg Thr Gly Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Gln Leu
 210 215 220
 Asp Arg Pro Gly His Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly
 225 230 235 240
 Leu Arg Leu Asp Ser Arg Glu Glu Ile Gly Leu Phe Arg Tyr Asp Glu
 245 250 255
 Pro Leu Lys Gly Lys Pro Ile Lys Ser Phe Thr Asp Tyr Ala Arg Gln
 260 265 270
 Leu Phe Gly Ala Leu Met Asn Ala Gln Glu Lys Ile His Leu His Gly
 275 280 285
 Asp Asp Trp Gln Arg Thr Ile Tyr Ile Asp Thr Leu Asp Val Gly Thr
 290 295 300
 Thr Asp Phe Asn Leu Ser Asp Ala Thr Lys Gln Ala Leu Ile Glu Gln
 305 310 315 320
 Gly Ile Asn Gly Thr Glu Asn Tyr Phe Glu Trp Phe Asp Asn Pro Leu
 325 330 335
 Glu Lys Pro Val Asn Arg Val Glu Ser
 340 345

<210> 87
 <211> 870
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 87
 atgtcaaaga aactcgtaat atcggtagcg ggcggcggag cactcggaat cggaccactc 60
 gcattcctgt gcaagattga acagatgctg ggaaagaaga taccocagggt tgcgcaggca 120
 tacgccggca cttcaaccgg agcaataatt gcggcaggac tggccgaagg ctactccgcg 180
 catgaactgt tcgacctata caaatcaaatt ctcagcaaga tattcaccaa atacagctgg 240
 tacaaacgcc tgcagccaac gtgtcctaca tatgacaaca gtaacctaaa gaaattactg 300
 aaggacaaat tcaagggcaa ggtcggcgac tggaaaactc ccgtatacat cccggcaaca 360
 cacatgaacg gccaatccgt agaaaagggtg tgggacttgg gtgacaagaa tgttgacaag 420
 tggtttgcca ttctgacaag taccgcggca ccaacctatt tcgactgcat atacgacgac 480
 gagaagaact gctacatcga tgggtggcatg tgggtgcaacg caccaatcga tgtgcttaat 540
 gcaggcctga tcaagtccgg ctggtccaac tacaaggctc tggacctgga gaccggcatg 600
 gacacaccga atacggaaaag cggaacaacg acacttctcg gatgggggga atacatcata 660
 agcaactggg tagcccgttc cagcaagtcc ggcgaatacg aggtaaaggc cataatcggg 720
 gaagacaatg tatgtgttgc ccgtccatac gtaagcaaga aaccgaagat ggatgacgtg 780
 gacagcaaga cgctggatga agtcgtggat atctgggaaa actacttcta cgccaagcag 840
 aaagacatcg catcgtggct gaaaatctag 870

<210> 88
 <211> 289
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 88
 Met Ser Lys Lys Leu Val Ile Ser Val Ala Gly Gly Gly Ala Leu Gly
 1 5 10 15
 Ile Gly Pro Leu Ala Phe Leu Cys Lys Ile Glu Gln Met Leu Gly Lys
 20 25 30
 Lys Ile Pro Gln Val Ala Gln Ala Tyr Ala Gly Thr Ser Thr Gly Ala
 35 40 45
 Ile Ile Ala Ala Gly Leu Ala Glu Gly Tyr Ser Ala His Glu Leu Phe
 50 55 60
 Asp Leu Tyr Lys Ser Asn Leu Ser Lys Ile Phe Thr Lys Tyr Ser Trp

65					70					75					80
Tyr	Lys	Arg	Leu	Gln	Pro	Thr	Cys	Pro	Thr	Tyr	Asp	Asn	Ser	Asn	Leu
				85					90					95	
Lys	Lys	Leu	Leu	Lys	Asp	Lys	Phe	Lys	Gly	Lys	Val	Gly	Asp	Trp	Lys
			100					105					110		
Thr	Pro	Val	Tyr	Ile	Pro	Ala	Thr	His	Met	Asn	Gly	Gln	Ser	Val	Glu
		115					120					125			
Lys	Val	Trp	Asp	Leu	Gly	Asp	Lys	Asn	Val	Asp	Lys	Trp	Phe	Ala	Ile
	130					135					140				
Leu	Thr	Ser	Thr	Ala	Ala	Pro	Thr	Tyr	Phe	Asp	Cys	Ile	Tyr	Asp	Asp
	145				150					155					160
Glu	Lys	Asn	Cys	Tyr	Ile	Asp	Gly	Gly	Met	Trp	Cys	Asn	Ala	Pro	Ile
			165						170					175	
Asp	Val	Leu	Asn	Ala	Gly	Leu	Ile	Lys	Ser	Gly	Trp	Ser	Asn	Tyr	Lys
		180						185					190		
Val	Leu	Asp	Leu	Glu	Thr	Gly	Met	Asp	Thr	Pro	Asn	Thr	Glu	Ser	Gly
	195					200					205				
Asn	Lys	Thr	Leu	Leu	Gly	Trp	Gly	Glu	Tyr	Ile	Ile	Ser	Asn	Trp	Val
	210				215						220				
Ala	Arg	Ser	Ser	Lys	Ser	Gly	Glu	Tyr	Glu	Val	Lys	Ala	Ile	Ile	Gly
	225				230					235					240
Glu	Asp	Asn	Val	Cys	Val	Ala	Arg	Pro	Tyr	Val	Ser	Lys	Lys	Pro	Lys
			245					250						255	
Met	Asp	Asp	Val	Asp	Ser	Lys	Thr	Leu	Asp	Glu	Val	Val	Asp	Ile	Trp
		260					265						270		
Glu	Asn	Tyr	Phe	Tyr	Ala	Lys	Gln	Lys	Asp	Ile	Ala	Ser	Trp	Leu	Lys
	275						280					285			

Ile

<210> 89
 <211> 1422
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 89

atgaaaaaga	aattatgtac	actggcctttt	gtaacagcaa	tatcttctat	cgctatcaca	60
attccaacag	aagcacaagc	ttgtggaata	ggcgaagtaa	tgaacagga	gaaccaagag	120
cacaaacgtg	tgaagagatg	gtctgcggaa	catccacatc	atcctaata	aagtacgcac	180
ttatggattg	cgcgaaatgc	aattcaaata	atggcccgtg	atcaagata	gacgggtcaa	240
gaaaaatgaat	tacaattttt	aaatactcct	gaatataagg	agttatttga	aagaggctct	300
tatgatgctg	attaccttga	tgaatttaac	gatggaggta	caggtacaat	cggcattgat	360
gggctaatta	aaggagggtg	gaaatctcat	ttttacgata	ccgatacgag	aaagaactat	420
aaaggggaag	agaaccaaac	agctctctct	caaggagata	aatattttta	attagcaggc	480
gattacttta	agaaagagga	ttggaaacaa	gctttctatt	atttaggtgt	tgcgacgcac	540
tacttcacag	atgctactca	gccaatgcat	gctgctaatt	ttacagccgt	cgacacgagt	600
gctttaaagt	ttcatagcgc	ttttgaaaat	tatgtgacga	caattcagac	acagtatgaa	660
gtatctgatg	gtgagggcgt	atataattta	gtgaattcta	atgatccaaa	acagtggatc	720
catgaaacag	cgagactcgc	aaaagtggaa	atcggaacaa	ttaccaatga	cgagattaaa	780
tctcactata	ataaaggaaa	caatgctctt	tggcaacaag	aagttatgcc	agctgtccag	840
aggagtttag	agaacgcaca	aagaacacg	gcgggattta	ttcatttatg	gtttaaaaca	900
tttggttgca	atactgccgc	tgaagaaatt	gaaaataactg	tagtgaaaga	ttctaaagga	960
gaagcaatac	aagataataa	aaaatacttc	gtagtgccaa	gtgagtttct	aaatagaggt	1020
ttgacctttg	aagtatatgc	aaggaatgac	tatgcactat	tatctaatta	cgtagatgat	1080
agtaaagtgc	atggtacgcc	agttcagttt	gtatttgata	aagataataa	cggtatcctt	1140
catcgaggag	aaagtatact	gctgaaaatg	acgcaatcta	actatgataa	ttacgtatct	1200
ctaaactact	ctaacttgac	aaactgggta	catcttgccg	aacaaaaaac	aaatactgca	1260
cagtttaaaag	tgtatccaaa	tccgaataac	ccatctgaat	attacctata	tacagatgga	1320
tacccagtaa	attatcaaga	aaatggtaac	ggaaagagct	ggattgtgtt	aggaaagaaa	1380
acagatacac	caaagccttg	gaaatttata	caggctgaat	ag		1422

<210> 90
 <211> 473
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<221> SIGNAL
 <222> (1)...(25)

<400> 90
 Met Lys Lys Lys Leu Cys Thr Leu Ala Phe Val Thr Ala Ile Ser Ser
 1 5 10 15
 Ile Ala Ile Thr Ile Pro Thr Glu Ala Gln Ala Cys Gly Ile Gly Glu
 20 25 30
 Val Met Lys Gln Glu Asn Gln Glu His Lys Arg Val Lys Arg Trp Ser
 35 40 45
 Ala Glu His Pro His His Pro Asn Glu Ser Thr His Leu Trp Ile Ala
 50 55 60
 Arg Asn Ala Ile Gln Ile Met Ala Arg Asn Gln Asp Lys Thr Val Gln
 65 70 75 80
 Glu Asn Glu Leu Gln Phe Leu Asn Thr Pro Glu Tyr Lys Glu Leu Phe
 85 90 95
 Glu Arg Gly Leu Tyr Asp Ala Asp Tyr Leu Asp Glu Phe Asn Asp Gly
 100 105 110
 Gly Thr Gly Thr Ile Gly Ile Asp Gly Leu Ile Lys Gly Gly Trp Lys
 115 120 125
 Ser His Phe Tyr Asp Pro Asp Thr Arg Lys Asn Tyr Lys Gly Glu Glu
 130 135 140
 Glu Pro Thr Ala Leu Ser Gln Gly Asp Lys Tyr Phe Lys Leu Ala Gly
 145 150 155 160
 Asp Tyr Phe Lys Lys Glu Asp Trp Lys Gln Ala Phe Tyr Tyr Leu Gly
 165 170 175
 Val Ala Thr His Tyr Phe Thr Asp Ala Thr Gln Pro Met His Ala Ala
 180 185 190
 Asn Phe Thr Ala Val Asp Thr Ser Ala Leu Lys Phe His Ser Ala Phe
 195 200 205
 Glu Asn Tyr Val Thr Thr Ile Gln Thr Gln Tyr Glu Val Ser Asp Gly
 210 215 220
 Glu Gly Val Tyr Asn Leu Val Asn Ser Asn Asp Pro Lys Gln Trp Ile
 225 230 235 240
 His Glu Thr Ala Arg Leu Ala Lys Val Glu Ile Gly Asn Ile Thr Asn
 245 250 255
 Asp Glu Ile Lys Ser His Tyr Asn Lys Gly Asn Asn Ala Leu Trp Gln
 260 265 270
 Gln Glu Val Met Pro Ala Val Gln Arg Ser Leu Glu Asn Ala Gln Arg
 275 280 285
 Asn Thr Ala Gly Phe Ile His Leu Trp Phe Lys Thr Phe Val Gly Asn
 290 295 300
 Thr Ala Ala Glu Glu Ile Glu Asn Thr Val Val Lys Asp Ser Lys Gly
 305 310 315 320
 Glu Ala Ile Gln Asp Asn Lys Lys Tyr Phe Val Val Pro Ser Glu Phe
 325 330 335
 Leu Asn Arg Gly Leu Thr Phe Glu Val Tyr Ala Arg Asn Asp Tyr Ala
 340 345 350
 Leu Leu Ser Asn Tyr Val Asp Asp Ser Lys Val His Gly Thr Pro Val
 355 360 365
 Gln Phe Val Phe Asp Lys Asp Asn Asn Gly Ile Leu His Arg Gly Glu
 370 375 380
 Ser Ile Leu Leu Lys Met Thr Gln Ser Asn Tyr Asp Asn Tyr Val Phe
 385 390 395 400
 Leu Asn Tyr Ser Asn Leu Thr Asn Trp Val His Leu Ala Gln Gln Lys
 405 410 415

Thr Asn Thr Ala Gln Phe Lys Val Tyr Pro Asn Pro Asn Asn Pro Ser
420 425 430
Glu Tyr Tyr Leu Tyr Thr Asp Gly Tyr Pro Val Asn Tyr Gln Glu Asn
435 440 445
Gly Asn Gly Lys Ser Trp Ile Val Leu Gly Lys Lys Thr Asp Thr Pro
450 455 460
Lys Ala Trp Lys Phe Ile Gln Ala Glu
465 470

<210> 91
<211> 1035
<212> DNA
<213> Unknown

<220>
<223> Obtained from an environmental sample.

<400> 91
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gtcggagcaa tgcagattct tgaaaatcgt ggtgtattac aagatattca ccgagtcgga 120
ggttgtagtg cgggtgcgat taacgcgctg atttttgcgc tgggttacac agtccgtgag 180
caaaaagaga tcttacaat taccgatctt aaccagttta tggataactc gtgggggtgtt 240
attcgggata ttgcgaggct tgcgagagaa tttggctgga ataagggtaa cttctttaat 300
acctggatag gtgatttgat tcatcgtcgt ttgggtaatc gccgagccac gttcaaagat 360
ctgcaaaagg caaagcttcc tgatctttat gtcatcggta ctaatctgtc tacagggttt 420
gcagaggttt tttctgccga aagacacccc gatatggagc tggcgacagc ggtgcgtatc 480
tccatgtcga taccgctgtt ctttgcggcc gtgcgtcacg gtgatcgaca agatgtgtat 540
gtcgatgggg gtgtgcagct taactaccgc atcaagctgt ttgatcgaac tcgttatatt 600
gacctcgcca aagatccggg tgctgctcgc cacacgggtt attacaataa agagaatgct 660
cgttttcagc ttgagcgcacc gggccacagt ccttatgtgt acaatcgcca aacattaggc 720
ttgcgtcttg acagtcgtga agagatagcg ctgtttcgtt acgacgaacc tcttcagggt 780
aaaccatta agtccttcac tgactacgct cgacaacttt ttggtgcgct gaagaatgca 840
caggaataca ttcacctaca tggcgatgat tggcagcgca cggctctatat cgatacattg 900
gatgtgggta cgacggattt caatctttct gatgcaacca agcaagcact gattgaacag 960
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aatagagtgg agtaa 1035

<210> 92
<211> 344
<212> PRT
<213> Unknown

<220>
<223> Obtained from an environmental sample.

<400> 92
Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys
1 5 10 15
Gly Ile Ala Tyr Val Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val
20 25 30
Leu Gln Asp Ile His Arg Val Gly Gly Cys Ser Ala Gly Ala Ile Asn
35 40 45
Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile
50 55 60
Leu Gln Ile Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val
65 70 75 80
Ile Arg Asp Ile Arg Arg Leu Ala Arg Glu Phe Gly Trp Asn Lys Gly
85 90 95
Asn Phe Phe Asn Thr Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly
100 105 110
Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp
115 120 125
Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ala Glu Val Phe
130 135 140

Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile
145 150 155 160
Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Val Arg His Gly Asp Arg
165 170 175
Gln Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Ile Lys
180 185 190
Leu Phe Asp Arg Thr Arg Tyr Ile Asp Leu Ala Lys Asp Pro Gly Ala
195 200 205
Ala Arg His Thr Gly Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Gln Leu
210 215 220
Glu Arg Pro Gly His Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly
225 230 235 240
Leu Arg Leu Asp Ser Arg Glu Glu Ile Ala Leu Phe Arg Tyr Asp Glu
245 250 255
Pro Leu Gln Gly Lys Pro Ile Lys Ser Phe Thr Asp Tyr Ala Arg Gln
260 265 270
Leu Phe Gly Ala Leu Lys Asn Ala Gln Glu Asn Ile His Leu His Gly
275 280 285
Asp Asp Trp Gln Arg Thr Val Tyr Ile Asp Thr Leu Asp Val Gly Thr
290 295 300
Thr Asp Phe Asn Leu Ser Asp Ala Thr Lys Gln Ala Leu Ile Glu Gln
305 310 315 320
Gly Ile Asn Gly Thr Glu Asn Tyr Phe Glu Trp Phe Asp Asn Pro Phe
325 330 335
Glu Lys Pro Val Asn Arg Val Glu
340

<210> 93
<211> 963
<212> DNA
<213> Unknown

<220>
<223> Obtained from an environmental sample.

<400> 93
gtgattactt tgataaaaaa atgtttatta gtattgacga tgactctatt atcaggggtt 60
ttcgtaccgc tgcagccatc atatgctact gaaaattatc caaatgattt taaactgttg 120
caacataatg tattttttatt gcctgaatca gtttcttatt ggggtcagga cgaacgtgca 180
gattatatga gtaatgcaga ttactttaag ggacatgatg ctctgctctt aaatgagctt 240
tttgacaatg gaaattcgaa cgtgctgcta atgaacttat ccaaggaata tacatatcaa 300
acgccagtgc ttggccgttc gatgagtggg tgggatgaaa ctagaggaag ctatttcta 360
tttgtaccog aagatggtgg ttagcaatt atcagtaaat ggccaatcgt ggagaaaata 420
cagcatgttt acgcgaatgg ttgcggtgca gactattatg caaataaagg atttgtttat 480
gcaaaagtac aaaaaggagg taaattctat catcttatca gcaactcatg tcaagccgaa 540
gataccgggt gtgatcaggg tgaaggagca gaaattcgct attcacagt tcaagaaatc 600
aacgacttta ttaaaaataa aaacattccg aaagatgaag tggattttat tgggtgtgac 660
tttaatgtga tgaagagtga cacaacagag tacaatagca tggtatcaac attaaatgtc 720
aatgcgccta ccgaatatatt agggcataac tctacttggg acccagaaac gaacagcatt 780
acaggttaca attaccctga ttatgcgcca cagcatttag attatatatt tgtggaaaaa 840
gatcataaac aaccaagttc atgggtaaat gaaacgatta ctccgaagtc tccaacttgg 900
aaggcaatct atgagtataa tgattattcc gatcactatc ctgttaaagc atacgtaaaa 960
taa 963

<210> 94
<211> 320
<212> PRT
<213> Unknown

<220>
<223> Obtained from an environmental sample.

<221> SIGNAL
<222> (1)...(29)

<400> 94

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Met Ile Thr Leu Ile Lys Lys Cys Leu Leu Val Leu Thr Met Thr Leu
 1           5           10           15
Leu Ser Gly Val Phe Val Pro Leu Gln Pro Ser Tyr Ala Thr Glu Asn
 20           25           30
Tyr Pro Asn Asp Phe Lys Leu Leu Gln His Asn Val Phe Leu Leu Pro
 35           40           45
Glu Ser Val Ser Tyr Trp Gly Gln Asp Glu Arg Ala Asp Tyr Met Ser
 50           55           60
Asn Ala Asp Tyr Phe Lys Gly His Asp Ala Leu Leu Asn Glu Leu
 65           70           75           80
Phe Asp Asn Gly Asn Ser Asn Val Leu Leu Met Asn Leu Ser Lys Glu
 85           90           95
Tyr Thr Tyr Gln Thr Pro Val Leu Gly Arg Ser Met Ser Gly Trp Asp
 100          105          110
Glu Thr Arg Gly Ser Tyr Ser Asn Phe Val Pro Glu Asp Gly Gly Val
 115          120          125
Ala Ile Ile Ser Lys Trp Pro Ile Val Glu Lys Ile Gln His Val Tyr
 130          135          140
Ala Asn Gly Cys Gly Ala Asp Tyr Tyr Ala Asn Lys Gly Phe Val Tyr
 145          150          155          160
Ala Lys Val Gln Lys Gly Asp Lys Phe Tyr His Leu Ile Ser Thr His
 165          170          175
Ala Gln Ala Glu Asp Thr Gly Cys Asp Gln Gly Glu Gly Ala Glu Ile
 180          185          190
Arg His Ser Gln Phe Gln Glu Ile Asn Asp Phe Ile Lys Asn Lys Asn
 195          200          205
Ile Pro Lys Asp Glu Val Val Phe Ile Gly Gly Asp Phe Asn Val Met
 210          215          220
Lys Ser Asp Thr Thr Glu Tyr Asn Ser Met Leu Ser Thr Leu Asn Val
 225          230          235          240
Asn Ala Pro Thr Glu Tyr Leu Gly His Asn Ser Thr Trp Asp Pro Glu
 245          250          255
Thr Asn Ser Ile Thr Gly Tyr Asn Tyr Pro Asp Tyr Ala Pro Gln His
 260          265          270
Leu Asp Tyr Ile Phe Val Glu Lys Asp His Lys Gln Pro Ser Ser Trp
 275          280          285
Val Asn Glu Thr Ile Thr Pro Lys Ser Pro Thr Trp Lys Ala Ile Tyr
 290          295          300
Glu Tyr Asn Asp Tyr Ser Asp His Tyr Pro Val Lys Ala Tyr Val Lys
 305          310          315          320

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<210> 95

<211> 1038

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 95

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ataggtgcga tgcagggtgct ggatcagcgc gggtattttgg gtgataacat caaacgcgtt      120
ggtggaacca gtgcagggtgc cataaatgcg ctgattttatt cgtaggata tgacatccac      180
gaacaacaag agatactgaa ctctacagat tttaaaaagt ttatggataa ctcttttgga      240
tttgtgaggg atttcagaag gctatggaat gaatttggat ggaatagagg agactttttt      300
cttaaattggt caggtgagct gatcaaaaat aaattgggca cctcaaaagc caccttttcag      360
gatttgaagg atgccggtca gccagatttg tatgtaattg gaacaaattt atcgacgggg      420
ttttccgaga ctttttcata tgaacgtcac cccgatatga ctcttgacaga agccgtaaga      480
atcagtatgt cgcttccgct gtttttcagg gctgtgcggt tgggcgacag gaatgatgta      540
tatgtggatg gtgggggttca gctcaattac ccggtaaaac tatttgatcg tgaaaaatat      600
attgatatgg ataatgaggc ggctgcagca cgattttactg attattacaa caaagaaaat      660
gccagatattt cgctccagcg gcctggacga agcccctatg tatataatcg tcaaaccctt      720

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ggtttgagac	tggatacagc	cgaagaaatt	gcgcttttca	ggtacgatga	acccattcag	780
gggaaagaga	tcaaacggtt	tccggaatat	gcaaaggctc	tgatcggcgc	actaatgcag	840
gtgcaggaaa	acatacatct	ccacagtgac	gactggcagc	gtacgctgta	tatcaatacc	900
ctggatgtaa	aaaccacaga	ttttgaatta	accgatgaga	aaaaaaagga	actggtagaa	960
cagggaatcc	ttggcgcgga	aacctatttc	aaatggtttg	aagacaggga	tgaagtagtt	1020
gtaaaccgcc	ttgcttag					1038

<210> 96
 <211> 345
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 96

Met	Ala	Ser	Gln	Phe	Arg	Asn	Leu	Val	Phe	Glu	Gly	Gly	Gly	Val	Lys
1				5					10					15	
Gly	Ile	Ala	Tyr	Ile	Gly	Ala	Met	Gln	Val	Leu	Asp	Gln	Arg	Gly	Tyr
			20					25					30		
Leu	Gly	Asp	Asn	Ile	Lys	Arg	Val	Gly	Gly	Thr	Ser	Ala	Gly	Ala	Ile
		35					40					45			
Asn	Ala	Leu	Ile	Tyr	Ser	Leu	Gly	Tyr	Asp	Ile	His	Glu	Gln	Gln	Glu
	50					55				60					
Ile	Leu	Asn	Ser	Thr	Asp	Phe	Lys	Lys	Phe	Met	Asp	Asn	Ser	Phe	Gly
65					70				75					80	
Phe	Val	Arg	Asp	Phe	Arg	Arg	Leu	Trp	Asn	Glu	Phe	Gly	Trp	Asn	Arg
			85						90					95	
Gly	Asp	Phe	Phe	Leu	Lys	Trp	Ser	Gly	Glu	Leu	Ile	Lys	Asn	Lys	Leu
			100					105					110		
Gly	Thr	Ser	Lys	Ala	Thr	Phe	Gln	Asp	Leu	Lys	Asp	Ala	Gly	Gln	Pro
		115					120					125			
Asp	Leu	Tyr	Val	Ile	Gly	Thr	Asn	Leu	Ser	Thr	Gly	Phe	Ser	Glu	Thr
	130					135					140				
Phe	Ser	Tyr	Glu	Arg	His	Pro	Asp	Met	Thr	Leu	Ala	Glu	Ala	Val	Arg
145					150				155						160
Ile	Ser	Met	Ser	Leu	Pro	Leu	Phe	Phe	Arg	Ala	Val	Arg	Leu	Gly	Asp
			165					170						175	
Arg	Asn	Asp	Val	Tyr	Val	Asp	Gly	Gly	Val	Gln	Leu	Asn	Tyr	Pro	Val
		180						185					190		
Lys	Leu	Phe	Asp	Arg	Glu	Lys	Tyr	Ile	Asp	Met	Asp	Asn	Glu	Ala	Ala
	195						200					205			
Ala	Ala	Arg	Phe	Thr	Asp	Tyr	Tyr	Asn	Lys	Glu	Asn	Ala	Arg	Phe	Ser
	210					215					220				
Leu	Gln	Arg	Pro	Gly	Arg	Ser	Pro	Tyr	Val	Tyr	Asn	Arg	Gln	Thr	Leu
225					230				235						240
Gly	Leu	Arg	Leu	Asp	Thr	Ala	Glu	Glu	Ile	Ala	Leu	Phe	Arg	Tyr	Asp
			245					250						255	
Glu	Pro	Ile	Gln	Gly	Lys	Glu	Ile	Lys	Arg	Phe	Pro	Glu	Tyr	Ala	Lys
		260					265						270		
Ala	Leu	Ile	Gly	Ala	Leu	Met	Gln	Val	Gln	Glu	Asn	Ile	His	Leu	His
	275					280						285			
Ser	Asp	Asp	Trp	Gln	Arg	Thr	Leu	Tyr	Ile	Asn	Thr	Leu	Asp	Val	Lys
	290					295					300				
Thr	Thr	Asp	Phe	Glu	Leu	Thr	Asp	Glu	Lys	Lys	Lys	Glu	Leu	Val	Glu
305					310				315						320
Gln	Gly	Ile	Leu	Gly	Ala	Glu	Thr	Tyr	Phe	Lys	Trp	Phe	Glu	Asp	Arg
			325					330						335	
Asp	Glu	Val	Val	Val	Asn	Arg	Leu	Ala							
		340					345								

<210> 97
 <211> 1422
 <212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 97

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cacaaacgtg	tgaaaagatg	gtctgcggtg	catccgcctc	attcacatga	aagtacccat	180
ttatggattg	cacaaaatgc	gattcaaatt	atgagccgta	atcaagataa	gacggttcaa	240
gaaaatgaat	tacaattttt	aaatacccct	gaatataagg	agttatttga	aagaggctct	300
tatgatgctg	attaccttga	tgaattttaac	gatggaggta	caggtataat	cggcattgat	360
gggctaattc	gaggagggtg	gaaatctcat	ttctacgac	ccgatacaag	aaagaactat	420
aaaggggagg	aagaaccaac	agctctttct	caaggagata	aatattttta	attagcaggt	480
gaatacttta	agaagaatga	ttggaaacag	gctttctatt	atttaggtgt	tgcgacgcac	540
tactttacag	atgctactca	gccaatgcat	gctgctaatt	ttacagctgt	cgacaggagt	600
gctataaagt	ttcatagtgc	ttttgaagat	tatgtgacga	caattcagga	acagtttaaa	660
gtatcagatg	gagagggaaa	atataattta	gtaaattcta	atgatccgaa	acagtggatc	720
catgaaacag	cgagactcgc	aaaagtggaa	atcgggaaca	ttaccaatga	tgtgattaaa	780
tctcactata	ataaaggaaa	caatgctctt	tggcagcaag	aagttatgcc	agctgttcag	840
agaagtttag	aacaagccca	aagaaatacg	gcgggattta	ttcatttatg	gtttaaaaca	900
tatgttggaa	aaacagctgc	tgaagatatt	gaaaatacta	tagtgaaaga	ttctagggga	960
gaagcaatac	aagagaataa	aaaatacttt	gtagtaccaa	gtgagttttt	aaatagaggc	1020
ttaacatttg	aagtgtatgc	tgcttatgac	tatgcttat	tatctaacca	tgtggatgat	1080
aataatattc	atggtacacc	ggttcaaat	gtatttgata	aagaaaataa	tgggatcctt	1140
catcaaggag	aaagtgcatt	gttaaagatg	acacaatcca	actacgataa	ttatgtattt	1200
ctaaattatt	ctatcataac	aaattgggtg	catcttgcaa	aaagagaaaa	caatactgca	1260
cagtttaaa	tgtatccaaa	tccaaataat	ccaactgaat	atttcataata	tacagatggc	1320
tatccagtta	attatcaaga	aaaaggtaaa	gagaaaagct	ggattgtttt	aggaaagaaa	1380
acggataaac	caaaagcatg	gaaattttata	caggcggaat	aa		1422

<210> 98

<211> 473

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(25)

<400> 98

Met	Lys	Arg	Lys	Leu	Cys	Thr	Trp	Ala	Leu	Val	Thr	Ala	Ile	Ala	Ser
1				5					10					15	
Ser	Thr	Ala	Val	Ile	Pro	Thr	Ala	Ala	Glu	Ala	Cys	Gly	Leu	Gly	Glu
			20					25					30		
Val	Ile	Lys	Gln	Glu	Asn	Gln	Glu	His	Lys	Arg	Val	Lys	Arg	Trp	Ser
		35					40					45			
Ala	Glu	His	Pro	His	His	Ser	His	Glu	Ser	Thr	His	Leu	Trp	Ile	Ala
	50					55					60				
Gln	Asn	Ala	Ile	Gln	Ile	Met	Ser	Arg	Asn	Gln	Asp	Lys	Thr	Val	Gln
65					70				75					80	
Glu	Asn	Glu	Leu	Gln	Phe	Leu	Asn	Thr	Pro	Glu	Tyr	Lys	Glu	Leu	Phe
			85						90					95	
Glu	Arg	Gly	Leu	Tyr	Asp	Ala	Asp	Tyr	Leu	Asp	Glu	Phe	Asn	Asp	Gly
			100					105					110		
Gly	Thr	Gly	Ile	Ile	Gly	Ile	Asp	Gly	Leu	Ile	Arg	Gly	Gly	Trp	Lys
		115					120					125			
Ser	His	Phe	Tyr	Asp	Pro	Asp	Thr	Arg	Lys	Asn	Tyr	Lys	Gly	Glu	Glu
	130					135					140				
Glu	Pro	Thr	Ala	Leu	Ser	Gln	Gly	Asp	Lys	Tyr	Phe	Lys	Leu	Ala	Gly
145					150					155					160
Glu	Tyr	Phe	Lys	Lys	Asn	Asp	Trp	Lys	Gln	Ala	Phe	Tyr	Tyr	Leu	Gly

				165						170					175				
Val	Ala	Thr	His	Tyr	Phe	Thr	Asp	Ala	Thr	Gln	Pro	Met	His	Ala	Ala				
			180					185					190						
Asn	Phe	Thr	Ala	Val	Asp	Arg	Ser	Ala	Ile	Lys	Phe	His	Ser	Ala	Phe				
		195					200					205							
Glu	Asp	Tyr	Val	Thr	Thr	Ile	Gln	Glu	Gln	Phe	Lys	Val	Ser	Asp	Gly				
	210					215					220								
Glu	Gly	Lys	Tyr	Asn	Leu	Val	Asn	Ser	Asn	Asp	Pro	Lys	Gln	Trp	Ile				
225					230					235					240				
His	Glu	Thr	Ala	Arg	Leu	Ala	Lys	Val	Glu	Ile	Gly	Asn	Ile	Thr	Asn				
				245					250					255					
Asp	Val	Ile	Lys	Ser	His	Tyr	Asn	Lys	Gly	Asn	Asn	Ala	Leu	Trp	Gln				
			260					265					270						
Gln	Glu	Val	Met	Pro	Ala	Val	Gln	Arg	Ser	Leu	Glu	Gln	Ala	Gln	Arg				
	275						280					285							
Asn	Thr	Ala	Gly	Phe	Ile	His	Leu	Trp	Phe	Lys	Thr	Tyr	Val	Gly	Lys				
290					295						300								
Thr	Ala	Ala	Glu	Asp	Ile	Glu	Asn	Thr	Ile	Val	Lys	Asp	Ser	Arg	Gly				
305					310					315					320				
Glu	Ala	Ile	Gln	Glu	Asn	Lys	Lys	Tyr	Phe	Val	Val	Pro	Ser	Glu	Phe				
			325						330					335					
Leu	Asn	Arg	Gly	Leu	Thr	Phe	Glu	Val	Tyr	Ala	Ala	Tyr	Asp	Tyr	Ala				
			340				345					350							
Leu	Leu	Ser	Asn	His	Val	Asp	Asp	Asn	Asn	Ile	His	Gly	Thr	Pro	Val				
	355						360					365							
Gln	Ile	Val	Phe	Asp	Lys	Glu	Asn	Asn	Gly	Ile	Leu	His	Gln	Gly	Glu				
370					375					380									
Ser	Ala	Leu	Leu	Lys	Met	Thr	Gln	Ser	Asn	Tyr	Asp	Asn	Tyr	Val	Phe				
385					390				395					400					
Leu	Asn	Tyr	Ser	Ile	Ile	Thr	Asn	Trp	Val	His	Leu	Ala	Lys	Arg	Glu				
			405					410						415					
Asn	Asn	Thr	Ala	Gln	Phe	Lys	Val	Tyr	Pro	Asn	Pro	Asn	Asn	Pro	Thr				
			420					425					430						
Glu	Tyr	Phe	Ile	Tyr	Thr	Asp	Gly	Tyr	Pro	Val	Asn	Tyr	Gln	Glu	Lys				
	435					440					445								
Gly	Lys	Glu	Lys	Ser	Trp	Ile	Val	Leu	Gly	Lys	Lys	Thr	Asp	Lys	Pro				
	450				455						460								
Lys	Ala	Trp	Lys	Phe	Ile	Gln	Ala	Glu											
465					470														

<210> 99

<211> 1053

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 99

atggcaaagc	gtttttattct	ttcgatcgat	ggtggtggca	ttcgcgggat	catcccggcg	60
gccatcctgg	tgagctggc	caagcggttg	gaggggctgc	cgcttcacaa	ggcatttcgac	120
atgatcgccg	ggacatccac	cggcggcatc	attgcggcgg	ggctgacatg	cccgcatacct	180
gacgatgagg	agacggcggc	gtgcacgccg	accgatcttc	tcaagcttta	tgtcgatcac	240
ggcggcaaga	tcttcgagaa	aaaccgcgac	ctcggcctca	tcaaccatt	cggcctcaac	300
gatccgcgct	accagccaga	tgagctggaa	aacaggctga	aggcgcagct	cggcttgacg	360
gcgacgctcg	ataaagggtc	caccaagggtg	ctgatcacgg	cctatgatat	ccagcagcgg	420
caggcgctgt	tcatggcaaa	caccgacaac	gagaacagca	atttccgcta	ctgggaggca	480
gcgcggggcg	catcgccgc	acccacctat	tttccgcggg	cgctgatcga	aagggttggc	540
gagaagaaca	aggacaagcg	cttcgtgcc	ttgatcgacg	gcggcgctct	cgccaacgat	600
cctatccttg	ccgcctatgt	ggaggcgcg	aagcagaaat	ggggcaatga	cgagctcggt	660
ttcctgtcgc	ttggtaccgg	ccagcaaaac	cgcccgatcg	cctatcagga	ggccaagggc	720
tggggcattt	taggctggat	gcagccgtct	catgacacgc	cgctgatctc	gatcctgatg	780
cagggacagg	cgagcaccgc	ctcctatcag	gccaatgcgc	tgctcaatcc	gcccggcacc	840
aagatcgact	attcgaccgt	ggtgacgaag	gacaacgcgg	cttcgctcag	ctatttcctg	900

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ctcgaccggc agctgagctc gaaggagaac gacgcgctgg acgacgcac gcccgaaaac      960
atcagggcgc tgaaggcaat cgccgcgcaa atcatcaagg ataacgcgcc ggcgctcgac      1020
gaaatcgcca aacgcacctt ggccaaccaa taa                                     1053

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<210> 100
<211> 350
<212> PRT
<213> Unknown

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<220>
<223> Obtained from an environmental sample.

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<400> 100
Met Ala Lys Arg Phe Ile Leu Ser Ile Asp Gly Gly Gly Ile Arg Gly
 1          5          10          15
Ile Ile Pro Ala Ala Ile Leu Val Glu Leu Ala Lys Arg Leu Glu Gly
          20          25          30
Leu Pro Leu His Lys Ala Phe Asp Met Ile Ala Gly Thr Ser Thr Gly
          35          40          45
Gly Ile Ile Ala Ala Gly Leu Thr Cys Pro His Pro Asp Asp Glu Glu
          50          55          60
Thr Ala Ala Cys Thr Pro Thr Asp Leu Leu Lys Leu Tyr Val Asp His
          65          70          75          80
Gly Gly Lys Ile Phe Glu Lys Asn Pro Ile Leu Gly Leu Ile Asn Pro
          85          90          95
Phe Gly Leu Asn Asp Pro Arg Tyr Gln Pro Asp Glu Leu Glu Asn Arg
          100          105          110
Leu Lys Ala Gln Leu Gly Leu Thr Ala Thr Leu Asp Lys Gly Leu Thr
          115          120          125
Lys Val Leu Ile Thr Ala Tyr Asp Ile Gln Gln Arg Gln Ala Leu Phe
          130          135          140
Met Ala Asn Thr Asp Asn Glu Asn Ser Asn Phe Arg Tyr Trp Glu Ala
          145          150          155          160
Ala Arg Ala Thr Ser Ala Ala Pro Thr Tyr Phe Pro Pro Ala Leu Ile
          165          170          175
Glu Arg Val Gly Glu Lys Asn Lys Asp Lys Arg Phe Val Pro Leu Ile
          180          185          190
Asp Gly Gly Val Phe Ala Asn Asp Pro Ile Leu Ala Ala Tyr Val Glu
          195          200          205
Ala Arg Lys Gln Lys Trp Gly Asn Asp Glu Leu Val Phe Leu Ser Leu
          210          215          220
Gly Thr Gly Gln Gln Asn Arg Pro Ile Ala Tyr Gln Glu Ala Lys Gly
          225          230          235          240
Trp Gly Ile Leu Gly Trp Met Gln Pro Ser His Asp Thr Pro Leu Ile
          245          250          255
Ser Ile Leu Met Gln Gly Gln Ala Ser Thr Ala Ser Tyr Gln Ala Asn
          260          265          270
Ala Leu Leu Asn Pro Pro Gly Thr Lys Ile Asp Tyr Ser Thr Val Val
          275          280          285
Thr Lys Asp Asn Ala Ala Ser Leu Ser Tyr Phe Arg Leu Asp Arg Gln
          290          295          300
Leu Ser Ser Lys Glu Asn Asp Ala Leu Asp Asp Ala Ser Pro Glu Asn
          305          310          315          320
Ile Arg Ala Leu Lys Ala Ile Ala Ala Gln Ile Ile Lys Asp Asn Ala
          325          330          335
Pro Ala Leu Asp Glu Ile Ala Lys Arg Ile Leu Ala Asn Gln
          340          345          350

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<210> 101
<211> 996
<212> DNA
<213> Bacteria

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```

<400> 101

```

```

ttgtcgtctcg tcgctgtctgt ccgcgcgcgcc cccggcgccg ccctggccct cgcgcttgcc      60
gccgccaccc tggcgtgac cgcgcagggc gcgaccgccg ccccgccgc gcccgccgcc      120
gaggccccgc ggctcaaggt gctcacgtac aacacgttcc tgttctcgaa gacgctctac      180
ccgaactggg gccaggacca ccgggccaag gcgatcccca ccgccccctt ctaccagggc      240
caggacgtcg tggctctcca ggaggccttc gacaactccg cgtcggacgc cctcaaggcg      300
aactccgccg gccagtaccc ctaccagacc ccgctcgtgg gccgcggcac cggcggtcgg      360
gacgccaccg gcgggtccta ctctctgacc acccccgagg acggcggcgt gacgatcctc      420
agcaagtggc cgatcgtccg caaggagcag tacgtctaca aggacgcgtg cggcgccgac      480
tggtggtcca acaagggtt cgcctacgtc gtgctcaacg tgaacggcag caaggtgcac      540
gtcctcggca cccacgcca gtccaccgac ccgggctgct cggcgggcga ggcggtgcag      600
atgcggagcc gccagttcaa ggcgatcgac gccttcctcg acgccaagaa catcccgcg      660
ggcgagcagg tgatcgtcgc cggcgacatg aacgtcgact cgcgcacgcc cgagtacggc      720
accatgctcg ccgacgcggg tctggcggcg gccgacgcgc gcaccggcca cccgtactcc      780
ttcgacaccg agctgaactc gatcgctcc gagcgctacc cggacgacct gcgcgaggac      840
ctcgattacg tctctaccg cgcgggaac gcccgccccg ccaactggac caacaacgtg      900
gtcctggaga agagcgcgcc gtggaccgtc tccagctggg gcaagagcta cacctacacc      960
aacctctccg accactaccc ggtcaccggc ttctga      996

```

<210> 102

<211> 331

<212> PRT

<213> Bacteria

<220>

<221> SIGNAL

<222> (1)...(39)

<400> 102

```

Leu Ser Leu Val Ala Ser Leu Arg Arg Ala Pro Gly Ala Ala Leu Ala
 1          5          10        15
Leu Ala Leu Ala Ala Ala Thr Leu Ala Val Thr Ala Gln Gly Ala Thr
 20          25          30
Ala Ala Pro Ala Ala Ala Ala Glu Ala Pro Arg Leu Lys Val Leu
 35          40          45
Thr Tyr Asn Thr Phe Leu Phe Ser Lys Thr Leu Tyr Pro Asn Trp Gly
 50          55          60
Gln Asp His Arg Ala Lys Ala Ile Pro Thr Ala Pro Phe Tyr Gln Gly
 65          70          75          80
Gln Asp Val Val Val Leu Gln Glu Ala Phe Asp Asn Ser Ala Ser Asp
 85          90          95
Ala Leu Lys Ala Asn Ser Ala Gly Gln Tyr Pro Tyr Gln Thr Pro Val
 100         105         110
Val Gly Arg Gly Thr Gly Gly Trp Asp Ala Thr Gly Gly Ser Tyr Ser
 115         120         125
Ser Thr Thr Pro Glu Asp Gly Gly Val Thr Ile Leu Ser Lys Trp Pro
 130         135         140
Ile Val Arg Lys Glu Gln Tyr Val Tyr Lys Asp Ala Cys Gly Ala Asp
 145         150         155         160
Trp Trp Ser Asn Lys Gly Phe Ala Tyr Val Val Leu Asn Val Asn Gly
 165         170         175
Ser Lys Val His Val Leu Gly Thr His Ala Gln Ser Thr Asp Pro Gly
 180         185         190
Cys Ser Ala Gly Glu Ala Val Gln Met Arg Ser Arg Gln Phe Lys Ala
 195         200         205
Ile Asp Ala Phe Leu Asp Ala Lys Asn Ile Pro Ala Gly Glu Gln Val
 210         215         220
Ile Val Ala Gly Asp Met Asn Val Asp Ser Arg Thr Pro Glu Tyr Gly
 225         230         235         240
Thr Met Leu Ala Asp Ala Gly Leu Ala Ala Ala Asp Ala Arg Thr Gly
 245         250         255
His Pro Tyr Ser Phe Asp Thr Glu Leu Asn Ser Ile Ala Ser Glu Arg
 260         265         270
Tyr Pro Asp Asp Pro Arg Glu Asp Leu Asp Tyr Val Leu Tyr Arg Ala
 275         280         285

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Gly Asn Ala Arg Pro Ala Asn Trp Thr Asn Asn Val Val Leu Glu Lys
 290 295 300
 Ser Ala Pro Trp Thr Val Ser Ser Trp Gly Lys Ser Tyr Thr Tyr Thr
 305 310 315 320
 Asn Leu Ser Asp His Tyr Pro Val Thr Gly Phe
 325 330

<210> 103
 <211> 2205
 <212> DNA
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 103
 atgagcgcaga agaaggagat tcgcggttgcg ttgatcatgg ggggtggcgt cagcctcggc 60
 agtttttcgg gtggtgcgct tctcaagacc atcgagctgc tgcagcacac tgcccgcggt 120
 ccggcggaaga tcgatgtcgt gaccggtgcc tcggcgggaa gcatgacgct gggcgtagtc 180
 atctaccacc tcatgcgggg atcgtcgacc gatgagattc tccgcgatct gaggcggtcg 240
 tgggtggaaa tgatctcggt cgacggcctc tgtccgccga acctgtcccg tcacgacaag 300
 ccgagcctgt tttccgatga gatcgctccg aagatcgcg ccaccgtcat cgatatgggg 360
 cgcaagctcg agggcggtcc tcatccgctt ttgcgccgac aactcgtagc ctcgttcgca 420
 ctgacgaacc tgaacggcat ccccgcccgt acggagggcc agctcatccg gcaggcaaa 480
 ggaggcgag ggtccgagaa gggctcgaaa tccgttttcg ccgacgccgt gcagactacc 540
 tttcaccacg acgtgatgcg attcggtgtg cggcgcgatc acaacgggca aggcagcctg 600
 ttcgacagcc gttaccgggc acgcatactc cctccatgga atgttgggaa gggcggcgat 660
 gcatgggaag ccttttcgac ggcggtgtt gcctcgggg cgtttcggc cgcatttcct 720
 cccgtcgaga tcagccgcaa ccgcgacgaa ttcaacatct ggcccgatcg catcgaggac 780
 cagaaggcat ttacgttcga ttacgtggac ggcggggtac ttcgcaacga acccctcgg 840
 gaggcgattc acctggccgc gctgcgcgat gagggagcga cggacatcga gcgtgtgttc 900
 atcctcatcg acccgaacat cagcggcacc ggcgaggtct tcccgctctc ctataaccag 960
 cagatgcgga tcaagccgaa ctacgattcc aacggcgacg tccgacagta cgatctcgat 1020
 gtgccggact acaccggcaa tctgatcggg gcgatcggtc ggctgggttc ggtgatcgtc 1080
 gggcaggcga cgttccgcga ctggtcgaag gctgccaaag tgaacagcca gatcgagtgg 1140
 cgacgggaat tgctgcccac tctccgcgac ctgaaccgga accccgggga ggaggcgcg 1200
 aggggcgtga acgggatgat cgacaagatc taccggcaaa agtatcagcg cgcctcagag 1260
 tcaaagagcg ttccggtcga ggaggtggaa cggcgcggtg ccgaagacat cgaacgggac 1320
 ctggcgcggc gccgttcgga ggccggcgac aacgacttca ttgcccggct cctcctgctc 1380
 gtcgacctga tcggcaacct gcgtgagaag cagaagctga acatggtggc gatcaccccc 1440
 gcttcgcgc cgcacaacga cgggcgcccc ttgcccgttg ccggcaattt tatgttcagc 1500
 ttcgggggggt tcttcaggga ggagtacagg caatacgact tctcggtcgg cgaattcgca 1560
 gcatggaacg tcttgagcac gccggcctcc gagacgccct ttcttgccga gaccgccccg 1620
 aaaccgccc cccgacctcc ccagccgccg gcaatcaatc ctacctaccg ctactcggc 1680
 ccgcccaccc agcagcggtt cgaggagttc gttcgtgggc acgttcgcgc ctttatcgct 1740
 tcggtcgctc cgctgggaac gagaggatc gtcacgggca agattggcg aaagcttcga 1800
 acgatgctga tggcctcgcg caacgggaaa tcagagtact tccggcttcg cctctcggc 1860
 gttgacgggc tctacctcgg aggtccaag ggccgcaacc tgagggcggt taacggatcg 1920
 atcgacacgg tcgtcggcgt ctatatcgac gaggaagatc agcaccgca tgagtttttc 1980
 ggtccccatg tcttcggcgc gaacggctca ggctttacga tggaaactat ggagtcggc 2040
 ggttttttcg ggcgtgatcg tcgcgtcgct gtgatcgagt tggagaacaa ccccgcggg 2100
 ttcgcaatcg ccgcccgatg caggcgcgcg cccggcggtg tgctggatat ggccaggcgt 2160
 aacgggcagc cactgcggac ggtgatgtg atggaatttg cgtga 2205

<210> 104
 <211> 734
 <212> PRT
 <213> Unknown

<220>
 <223> Obtained from an environmental sample.

<400> 104
 Met Ser Glu Lys Lys Glu Ile Arg Val Ala Leu Ile Met Gly Gly Gly

1	5	10	15
Val Ser Leu Gly Ser Phe Ser Gly Gly Ala Leu Leu Lys Thr Ile Glu			
	20	25	30
Leu Leu Gln His Thr Ala Arg Gly Pro Ala Lys Ile Asp Val Val Thr			
	35	40	45
Gly Ala Ser Ala Gly Ser Met Thr Leu Gly Val Val Ile Tyr His Leu			
	50	55	60
Met Arg Gly Ser Ser Thr Asp Glu Ile Leu Arg Asp Leu Arg Arg Ser			
65	70	75	80
Trp Val Glu Met Ile Ser Phe Asp Gly Leu Cys Pro Pro Asn Leu Ser			
	85	90	95
Arg His Asp Lys Pro Ser Leu Phe Ser Asp Glu Ile Val Arg Lys Ile			
	100	105	110
Ala Ala Thr Val Ile Asp Met Gly Arg Lys Leu Glu Ala Ala Pro His			
	115	120	125
Pro Leu Phe Ala Asp Glu Leu Val Ala Ser Phe Ala Leu Thr Asn Leu			
	130	135	140
Asn Gly Ile Pro Ala Arg Thr Glu Gly Gln Leu Ile Arg Gln Ala Lys			
145	150	155	160
Gly Gly Gly Gly Ser Glu Lys Gly Ser Lys Ser Val Phe Ala Asp Ala			
	165	170	175
Val Gln Thr Thr Phe His His Asp Val Met Arg Phe Val Val Arg Arg			
	180	185	190
Asp His Asn Gly Gln Gly Ser Leu Phe Asp Ser Arg Tyr Arg Ala Arg			
	195	200	205
Ile Leu Pro Pro Trp Asn Val Gly Lys Gly Gly Asp Ala Trp Glu Ala			
	210	215	220
Phe Arg Thr Ala Ala Val Ala Ser Gly Ala Phe Pro Ala Ala Phe Pro			
225	230	235	240
Pro Val Glu Ile Ser Arg Asn Arg Asp Glu Phe Asn Ile Trp Pro Asp			
	245	250	255
Arg Ile Glu Asp Gln Lys Ala Phe Thr Phe Asp Tyr Val Asp Gly Gly			
	260	265	270
Val Leu Arg Asn Glu Pro Leu Arg Glu Ala Ile His Leu Ala Ala Leu			
	275	280	285
Arg Asp Glu Gly Ala Thr Asp Ile Glu Arg Val Phe Ile Leu Ile Asp			
	290	295	300
Pro Asn Ile Ser Gly Thr Gly Glu Val Phe Pro Leu Ser Tyr Asn Gln			
305	310	315	320
Gln Met Arg Ile Lys Pro Asn Tyr Asp Ser Asn Gly Asp Val Arg Gln			
	325	330	335
Tyr Asp Leu Asp Val Pro Asp Tyr Thr Gly Asn Leu Ile Gly Ala Ile			
	340	345	350
Gly Arg Leu Gly Ser Val Ile Val Gly Gln Ala Thr Phe Arg Asp Trp			
	355	360	365
Leu Lys Ala Ala Lys Val Asn Ser Gln Ile Glu Trp Arg Arg Glu Leu			
	370	375	380
Leu Pro Ile Leu Arg Asp Leu Asn Pro Asn Pro Gly Glu Glu Ala Arg			
385	390	395	400
Arg Gly Val Asn Gly Met Ile Asp Lys Ile Tyr Arg Gln Lys Tyr Gln			
	405	410	415
Arg Ala Leu Glu Ser Lys Ser Val Pro Val Glu Glu Val Glu Arg Arg			
	420	425	430
Val Ala Glu Asp Ile Glu Arg Asp Leu Ala Arg Arg Arg Ser Glu Ala			
	435	440	445
Gly Asp Asn Asp Phe Ile Ala Arg Leu Leu Leu Leu Val Asp Leu Ile			
	450	455	460
Gly Asn Leu Arg Glu Lys Gln Lys Leu Asn Met Val Ala Ile Thr Pro			
465	470	475	480
Ala Ser Ala Pro His Asn Asp Gly Arg Pro Leu Pro Leu Ala Gly Asn			
	485	490	495
Phe Met Phe Ser Phe Gly Gly Phe Phe Arg Glu Glu Tyr Arg Gln Tyr			
	500	505	510
Asp Phe Ser Val Gly Glu Phe Ala Ala Trp Asn Val Leu Ser Thr Pro			

	515		520		525										
Ala	Ser	Glu	Thr	Pro	Phe	Leu	Ala	Glu	Thr	Ala	Pro	Lys	Pro	Pro	Ala
	530					535					540				
Arg	Pro	Pro	Gln	Pro	Pro	Ala	Ile	Asn	Pro	Thr	Tyr	Arg	Ser	Leu	Gly
545					550					555					560
Pro	Pro	Ile	Gln	Gln	Arg	Phe	Glu	Glu	Phe	Val	Arg	Gly	His	Val	Arg
			565						570					575	
Ala	Phe	Ile	Ala	Ser	Val	Ala	Pro	Leu	Gly	Thr	Arg	Gly	Ile	Val	Thr
		580						585					590		
Gly	Lys	Ile	Gly	Gly	Lys	Leu	Arg	Thr	Met	Leu	Met	Ala	Ser	Arg	Asn
	595					600						605			
Gly	Lys	Ser	Glu	Tyr	Phe	Arg	Leu	Arg	Leu	Ser	Gly	Val	Asp	Gly	Leu
	610					615					620				
Tyr	Leu	Arg	Gly	Ser	Lys	Gly	Arg	Asn	Leu	Arg	Ala	Val	Asn	Gly	Ser
625					630					635					640
Ile	Asp	Thr	Val	Val	Gly	Val	Tyr	Ile	Asp	Glu	Glu	Asp	Gln	His	Arg
			645						650					655	
Asp	Glu	Phe	Phe	Gly	Pro	His	Val	Phe	Gly	Ala	Asn	Gly	Ser	Gly	Phe
		660						665					670		
Thr	Met	Glu	Leu	Trp	Glu	Ser	Arg	Gly	Phe	Phe	Gly	Arg	Asp	Arg	Arg
	675						680					685			
Val	Ala	Val	Ile	Glu	Leu	Glu	Asn	Asn	Pro	Gly	Gly	Phe	Ala	Ile	Ala
	690					695					700				
Ala	Gly	Cys	Arg	Arg	Arg	Pro	Gly	Val	Val	Leu	Asp	Met	Ala	Arg	Arg
705					710					715					720
Asn	Gly	Gln	Pro	Leu	Arg	Thr	Val	Asp	Val	Met	Glu	Phe	Ala		
			725						730						

<210> 105

<211> 756

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 105

atgaaccggt	gtcgggaactc	actcaacctc	caacttcgcg	cggtgaccgt	ggcggcggtg	60
gtagtcgtcg	catectcggc	cgcgctggcg	tgggacagcg	cctcgcgcaa	tccgacccat	120
cccacccaca	gctacctcac	cgaatacgcc	atcgatcagc	ttgggggtggc	gcggccggag	180
ctccggcaat	accgcaagca	gatcatcgag	ggcgccaaca	ccgagctgca	cgaactgccca	240
gtcaagggga	cggcctatgg	cctcgacctc	gacgccaagc	ggcgggaaca	ccgcggcacc	300
aatgccggga	cagacgacat	cgccggctgg	tgggcggaaa	gcctccaagc	ctatcgcgcc	360
ggtgccaaag	aacgcgccta	cttcgtgctg	ggggtgggtg	tgcacatggt	cgaggacatg	420
ggcgtgccgg	cgcacgcgaa	cggcgtctac	caccagggca	acctgactga	attcgacaat	480
ttcgagtcca	tgggactgtc	gaactggaag	ccctcttttcg	ccgacatcaa	ccggaccgat	540
ccgggctacg	ccgacccgctc	gcgctactac	gagttcagcc	gagattggac	ggcggcgagc	600
gcacccggct	atcgcgaccg	cgacagcttc	tcgaagacct	gggttctcgc	cagcccggcc	660
gaacgtcagc	tgccttcagaa	ccgccagggc	cggaccgcca	cggtcgccat	gtgggcgtta	720
cggagcgcga	cgaaggcggt	cgccgggaaa	ccctag			756

<210> 106

<211> 251

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(30)

<400> 106

Met Asn Arg Cys Arg Asn Ser Leu Asn Leu Gln Leu Arg Ala Val Thr

1				5					10					15		
Val	Ala	Ala	Leu	Val	Val	Val	Ala	Ser	Ser	Ala	Ala	Leu	Ala	Trp	Asp	
			20					25					30			
Ser	Ala	Ser	Arg	Asn	Pro	Thr	His	Pro	Thr	His	Ser	Tyr	Leu	Thr	Glu	
		35					40					45				
Tyr	Ala	Ile	Asp	Gln	Leu	Gly	Val	Ala	Arg	Pro	Glu	Leu	Arg	Gln	Tyr	
	50					55					60					
Arg	Lys	Gln	Ile	Ile	Glu	Gly	Ala	Asn	Thr	Glu	Leu	His	Glu	Leu	Pro	
65					70					75					80	
Val	Lys	Gly	Thr	Ala	Tyr	Gly	Leu	Asp	Leu	Asp	Ala	Lys	Arg	Arg	Glu	
				85					90					95		
His	Arg	Gly	Thr	Asn	Ala	Gly	Thr	Asp	Asp	Ile	Ala	Gly	Trp	Trp	Ala	
			100					105					110			
Glu	Ser	Leu	Gln	Ala	Tyr	Arg	Ala	Gly	Ala	Lys	Glu	Arg	Ala	Tyr	Phe	
		115					120					125				
Val	Leu	Gly	Val	Val	Leu	His	Met	Val	Glu	Asp	Met	Gly	Val	Pro	Ala	
	130					135					140					
His	Ala	Asn	Gly	Val	Tyr	His	Gln	Gly	Asn	Leu	Thr	Glu	Phe	Asp	Asn	
145					150					155					160	
Phe	Glu	Phe	Met	Gly	Leu	Ser	Asn	Trp	Lys	Pro	Ser	Phe	Ala	Asp	Ile	
			165						170					175		
Asn	Arg	Thr	Asp	Pro	Gly	Tyr	Ala	Asp	Pro	Ser	Arg	Tyr	Tyr	Glu	Phe	
			180					185					190			
Ser	Arg	Asp	Trp	Thr	Ala	Ala	Asp	Ala	Pro	Gly	Tyr	Arg	Asp	Arg	Asp	
		195					200					205				
Ser	Phe	Ser	Lys	Thr	Trp	Val	Leu	Ala	Ser	Pro	Ala	Glu	Arg	Gln	Leu	
	210					215					220					
Leu	Gln	Asn	Arg	Gln	Gly	Arg	Thr	Ala	Thr	Val	Ala	Met	Trp	Ala	Leu	
225					230					235					240	
Arg	Ser	Ala	Thr	Lys	Ala	Phe	Ala	Gly	Lys	Pro						
			245						250							